Safety Test Report

Product Name:	**WDM Optical Transmission System**
Product Model:	**OptiXtrans E6608**
Report Number:	**SYBH(A)06951878-01**

Reliability Laboratory of Huawei Technologies Co.Ltd

(Global Compliance and Testing Center of Huawei Technologies Co.Ltd)

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Notice

1. The laboratory has passed the accreditation by China National Accreditation Service for Conformity Assessment (CNAS). The accreditation number is L0310.
2. The laboratory (Reliability Lab of Huawei Technologies Co., Ltd) is also named as “Global Compliance and Testing Center of Huawei Technologies Co., Ltd”, the both names have coexisted since 2009.
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4. The test report is invalid if there is any evidence of erasure and/or falsification.
5. The test report is only valid for the test samples.
6. Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
7. If any question about this report, please contact the laboratory (PublicGCTC@huawei.com).

Applicant:	Huawei Technologies Co., Ltd.
Address:	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C
Product Name:	WDM Optical Transmission System
Product Model:	OptiXtrans E6608

Date of Receipt Sample:	2020-09-17
Start Date of Test:	2020-09-17
End Date of Test:	2020-09-19

Test Result: Pass

Approved by Senior Engineer:	**2020-09-20**	**Kelvin**	
	Date	Name	Signature

Prepared by:	**2020-09-19**	**Cici Chen**	
	Date	Name	Signature

Modification Record

No.	Last Report No.	Modification Description
1	N/A	The first report
2	SYBH(A)06747640-01	Add new boards

TEST REPORT

IEC 60950-1: 2005 (2nd Edition) + A1:2009 + A2:2013 and/or EN 60950-1:2006+A11:2009+ A1:2010 + A12:2011 + A2:2013

Information technology equipment – Safety – Part 1: General requirements

Report reference No. ..... :	SYBH(A)06951878-01
Date of issue.....:	2020-09-21
Total number of pages :	223
Testing laboratory ..... :	Reliability Laboratory of Huawei Technologies Co., Ltd.
Address ..... :	No.1899 xi yuan avenue, hi-tech western district, Chengdu, 611731, P.R China
Applicant..... :	Huawei Technologies Co., Ltd.
Address ..... :	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C
Manufacturer's name	Huawei Technologies Co., Ltd.
Address.....	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C
Test specification	
Standard..... :	☒ IEC 60950-1:2005 (Second Edition) + A 1:2009 + A 2:2013 and/or ☒ EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011+A2:2013
Test procedure.....:	IEC/ISO 17025
Non-standard test method .....:	N/A
Test Report Form No. ..... :	IEC60950_1F
TRF modified by..... :	Huawei
Master TRF.....:	Dated 2014-02

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This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

Test item description .....:	WDM Optical Transmission System
Trademark .....:	HUAWEI
Manufacturer .....:	Huawei Technologies Co., Ltd.
Model and/or type reference .....:	OptiXtrans E6608
Serial number .....:	N/A
Rating(s) .....:	Input: ⎓ -48- -60 V; 25 A or ~100 – 240 V; 50/60 Hz; 10 A or ⎓ 240 V; 6 A

Summary of testing:

Tests performed (name of test and test clause):

The submitted samples were found to comply with the requirements of:

- IEC 60950-1:2005 (Second Edition) + A 1:2009 + A 2:2013 and/or
- EN 60950-1:2006 + A11:2009 + A1:2010 + A12:2011+A2:2013

Summary of compliance with National Differences:

List of countries addressed: National Differences and Group Differences as per CB bulletin.

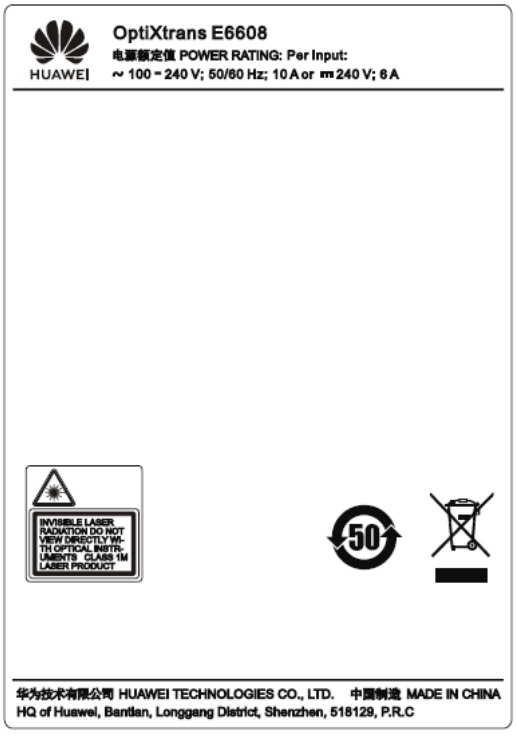
☒ The product fulfils the requirements of EN60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013.

Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

(Additional requirements for markings. See 1.7 NOTE)

HUAWEI
OptiXtrans E6608
电源额定值 POWER RATING: Per Input: ⎓ - 48 - - 60 V; 25 A
INVISIBLE LASER RADIATION DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS CLASS 1M LASER PRODUCT
50
华为技术有限公司 HUAWEI TECHNOLOGIES CO., LTD. 中国制造 MADE IN CHINA
HQ of Huawei, Bantian, Longgang District, Shenzhen, 518129, P.R.C


HUAWEI
OptiXtrans E6608
电源额定值 POWER RATING: Per Input:
~ 100 - 240 V; 50/60 Hz; 10 A or ⎓ 240 V; 8 A
INVISIBLE LASER RADIATION DO NOT VIEW DIRECTLY WITH OPTICAL INSTRUMENTS CLASS 1M LASER PRODUCT
50
华为技术有限公司 HUAWEI TECHNOLOGIES CO., LTD. 中国制造 MADE IN CHINA
HQ of Huawei, Bantian, Longgang District, Shenzhen, 518129, P.R.C

Test item particulars .....:	
Equipment mobility .....:	☐movable ☐hand-held ☐transportable ☒stationary ☐for building-in ☐direct plug-in
Connection to the mains.....:	For AC & 240 V d.c. input: ☒pluggable equipment ☒type A ☐type B ☐permanent connection For -48 to -60 V d.c. input: ☒detachable power supply cord ☐non-detachable power supply cord ☐not directly connected to the mains
Operating condition .....:	☒continuous ☐rated operating ☐resting time:
Access location .....:	☐operator accessible ☒restricted access location
Over voltage category (OVC) .....:	☐OVC I ☒OVC II ☐OVC III ☐OVC IV ☐other:
Mains supply tolerance (%) or absolute mains supply values .....:	-40 V d.c. - -72 V d.c.; 192 V d.c. - 288 V d.c.; 90 V a.c. - 264 V a.c.
Tested for IT power systems .....:	☐Yes ☒No
IT testing, phase-phase voltage (V) .....:	N/A
Class of equipment .....:	☒Class I ☐Class II ☐Class III ☐Not classified
Considered current rating of protective device as part of the building installlation (A) .....:	40 for -48- -60 V d.c. input. 16 for ~100 – 240 V or 240 V d.c. input.
Pollution degree (PD) .....:	☐PD 1 ☒PD 2 ☐PD 3
IP protection class .....:	IP20
Altitude during operation (m) .....:	≤ 5000
Altitude of test laboratory (m) .....:	≤ 2000
Mass of equipment (kg) .....:	5
Maximum operation ambient temperature(ºC) .....:	50

Possible test case verdicts:

- test case does not apply to the test object ..... : N/A
- test object does meet the requirement ..... : P (Pass)
- test object does not meet the requirement ..... : F (Fail)

General remarks:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.
"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

Note: This TRF includes EN Group Differences together with National Differences and Special National Conditions, if any. All Differences are located in the Appendix to the main body of this TRF.

Throughout this report a ~~comma~~ (point) is used as the decimal separator.

Dates in this report are in the format YYYY-MM-DD

Manufacturer's Declaration per sub-clause 6.2.5 of IECEE 02:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided .....:

☐ Yes
☒ Not applicable

Name and address of factory..... : N/A

General product information:

Huawei OptiXtrans E6608 is a highly-integrated all-optical transport platform designed for enterprises. The OptiXtrans E6608 can be widely used in industries such as energy, electric power, transportation, education, and finance that are crucial to national economy and people's livelihood.

E6608 as same as OSN 1800 II Pro, only the name is different, test data refer to OSN 1800 II Pro.

The ringing signal test data of TNW1FXSO12 phone port refer to OSN 1800 V Pro SYBH(A)06574306.

Unless otherwise noted in the report, the functional boards installed in the units shall be selected from the below list, but not means all the functional boards listed below shall be installed in one unit.

Board full Name	Description	Interfaces
TMB1PIU	Power Interface Board	No output ports
TMB1APIU	AC Power Interface Board	No output ports
TMK2FAN	FAN Board	No output ports
TMK2UXCL	Universal Cross Connect,System Control and Clock Processing Board	1 optical interface,Class 1 2 Ethernet interface,SELV 1 USB port，LPS 1 SMA port, SELV
TMK1EX10	10*10GE (SFP+) Ethernet Processing Board	Laser ports, CLASS 1
TMB1LDCD	4-channel 100Gbit/s to 2-Channel OTUC2 Service Convergence Wavelength Conversion Board(100G Line Capacity Included, RTU Extension Supported, A24)	Laser ports, CLASS 1
TMB1LDX	2*10Gbit/s Wavelength Conversion Board	Laser ports, CLASS 1
TNF1SP3DA	42xE1/120ohm Electrical Interface Board	E1 ports, SELV
TMB1EMS10	10-port Gigabit Ethernet Switching Processing Board	Laser ports, CLASS 1
TMK1UNS5	200G unified line service processing board (including 100G line capacity, supporting RTU extension)	Laser ports, CLASS 1
TMK1GTA	10*Multi-rate Universal Service Processing Board	Laser ports, CLASS 1
TMK1MDCA	2 x 100Gbit/s Or 10 x 10Gbit/s Multi-rate Ports Wavelength Conversion Board(100G Line Capacity Included, RTU Extension Supported)	Laser ports, CLASS 1

TMB1LDCA	2 x 100Gbit/s Or 10 x 10Gbit/s Multi-rate Ports Wavelength Conversion Board(100G line capacity included, RTU Extension Supported)	No output ports
TNW1AT8	8-Port 2/4 Wire and E&M Processing Board	E&M ports, TNV-2 (Phone)
TNF2ELOM	Enhanced 8 x Multi-rate-Service ports Multiplexing Optical Wavelength Conversion Board(OTU2)	Laser ports, CLASS 1
TNF2LDX	2*10Gbit/s Wavelength Conversion Board	Laser ports, CLASS 1
TNF2LQM2	Double 4 x Multi-rate Ports Wavelength Conversion Board,Wind Cooling Mode	Laser ports, CLASS 1
TNW1DXM	DDN Processing Board	1, Phone ports, ES2 2, FE ports, SELV
TNW1FXSO12	12-Port FXS/FXO Processing Board	Phone ports, ES2
TMB1ELOM	Enhanced 8 x Multi-rate-Service ports Multiplexing Optical Wavelength Conversion Board(OTU2)	Laser ports, CLASS 1
TMB1LTX	12*Multi-rate Service Multiplexing Into OTU4 Wavelength Conversion Board	Laser ports, CLASS 1
TMB1LDC	2-channel 100Gbit/s to 1-Channel OTUC2 Service Convergence Wavelength Conversion Board	Laser ports, CLASS 1
TMK1SLNO	4*STM-16/8*STM-4/8*STM-1-optical interface board	Laser ports, CLASS 1
TMB1SL41Q	4*STM-4/4*STM-1-optical interface board	Laser ports, CLASS 1
TMB1SL16S	1*STM-16-optical interface board	Laser ports, CLASS 1
TMK1TDC	TMK1TDC,2*100G Tributary Service Processing Board	2optical port, class1 laser
TMK1SLNO	4*STM-16/8*STM-4/8*STM-1-optical interface board	8 optical interface, class 1 laser
TMK1SL64S	1*STM-64 Optical Interface Board	1 optical interface, class 1 laser
TMK1SL16Q	4*STM-16 optical interface board	4 optical interface, class 1 laser
TMB1SL41O	8*STM-4/8*STM-1-optical interface board	8 optical interface, class 1 laser
TMB1SL16S	1*STM-16-optical interface board	1 optical interface, class 1 laser
TMB1EGS4	4-port Gigabit Ethernet Switching Processing Board	GE/FE Optical Interface, SELV / class 1
TMB1EFS8	8-Port 100M Fast Ethernet Processing Board with LAN Switch	GE/FE Optical Interface, SELV / class 1
TMK1TTA	10*Multi-rate Universal Service Processing Board	10 optical ports, class1 laser
TMK1UNQ2	4*10G Universal Line Service Processing Board	4 optical interface, class 1 laser
TNF1TSPB	21x E1/T1 Ports&2x STM-1 Ports Access Wavelength Conversion Board(E1/120 ohm	E1 ports, SELV

	T1/100 ohm)	
TNW1PF4E8	4x2M Optical Interface,8xE1 Electrical Interface Board	8 E1 ports, SELV; 4 optical ports, class1 laser
TNF1AUX	Assistant Chanel Inteface Board	Orderwire phone port, TNV-2 external clock input/output port Alarm output port Alarm input port 1, SELV
TMB1MD40AFS	Channel Multiplexing & Demultiplexing Board integrated with XFIU and OA	66 optical interface, class 1 laser
TMB2SBM3	Single-Fiber Bidirectional 3-Channel 6-Wave Mux Unit	10 optical interface, class 1 laser
TNF2OBU01	C-BAND Optical Amplifier Unit	5 optical interface, class 1M laser
TNF2OBU01JP	C-BAND Optical Amplifier Unit	5 optical interface, class 1M laser
TNF2OBU02	C-BAND Optical Amplifier Unit	5 optical interface, class 1M laser
TNF1OPM801	8-channel Optical Power Monitor Board	8 optical interface, class 1M laser
TNF1OPM801JP	8-channel Optical Power Monitor Board,Customized Part	8 optical interface, class 1M laser
TNF1ST2	Bidirectional optical supervisory channel and timing transmission unit,1*1	4 optical interface, class 1M laser,2 RJ45
TNF1ST2JP	Bidirectional optical supervisory channel and timing transmission unit,Customized Part	4 optical interface, class 1M laser,2 RJ45
TNF1AST401	Four-directional optical supervisory channel and timing transmission unit	12 optical interface, class 1M laser,2 RJ45
TNF1AST401JP	Four-directional optical supervisory channel and timing transmission unit	12 optical interface, class 1M laser,2 RJ45
TMB1DAP	OA base board with 2 pluggable ports	12 optical interface, class 1M laser
TMB1OLP	Optical Line Protection Unit	6 optical interface, class 1M laser
TNF1ITL06C	Interleaver Board(C Band)	7 optical interface, class 1 laser
TNF1ITL08C	Interleaver Board(C Band),100/50GHz	7 optical interface, class 1M laser
TNF1ITL06	Interleaver Board(C Band) 100/50GHz	7 optical interface, class 1 laser
TNF1ITL08	Interleaver Board(C Band),100/50GHz	7 optical interface, class 1M laser
TNF1ITL06JP	Interleaver Board(C Band),100/50GHz	7 optical interface, class 1M laser
TMB1AST201	Two-directional optical supervisory channel and timing transmission unit(with OTDR)	8 optical interface, class 1 laser
TNF1WSMD401	4-Port Wavelength selective multiplexing and Demultiplexing board	6 optical interface, class 1M laser
TNF1WSMD401JP	4-Port Wavelength selective multiplexing and Demultiplexing board,Customized Part	6 optical interface, class 1M laser
TNF1WSMD9XF	wavelength selective multiplexing and demultiplexing board integrated with XFIU(Extended C-band,6.25GHz flex grid)	Optical port, class 1M laser
TNF1DAP	OA base board with 2 pluggable ports	Optical port, class 1M laser

TNF1SCS02	Sync Optical Channel Separator Board, 850nm Optical Splitter(1:1)	6-Channel Optical Interface, class 1M laser
TNF1SCS01	Sync Optical Channel Separator Board, 850nm Optical Splitter(1:1)	6-Channel Optical Interface, class 1M laser
TNF1DFIU03	Both East & West Directional Fiber Interface Board(Dual FIU subcard),C/1510nm	6-Channel Optical Interface, class 1M laser
TNF1DFIU04	Fiber Interface Board(Single FIU subcard),C/1510nm	6-Channel Optical Interface, class 1M laser
TNF1DFIU02	Fiber Interface Board(Single FIU subcard),C/1510nm	6-Channel Optical Interface, class 1M laser
TNF1DFIU01	Both East & West Directional Fiber Interface Board(Dual FIU subcard),C/1510nm	6-Channel Optical Interface, class 1M laser
TNF1DSFIU01	Both East & West Directional Fiber Interface Board for Sync Timing(Dual SFIU subcard),C/1491&1511nm	6-Channel Optical Interface, class 1M laser
TNF1DSFIU01JP	Both East & West Directional Fiber Interface Board for Sync Timing(Dual SFIU subcard),C/1491&1511nm,Customized Part	6-Channel Optical Interface, class 1M laser
TNF1DSFIU02	Fiber Interface Board for Sync Timing(Single FIU subcard),C/1491&1511nm	6-Channel Optical Interface, class 1M laser
TNF1EMR410	Enhanced 4-ch Add/Drop Multiplexer,100GHz(192.1/192.2/192.3/192.4 THz),DWDM	12-Channel Optical Interface, class 1M laser
TNF1EMR411	Enhanced 4-ch Add/Drop Multiplexer,100GHz(192.5/192.6/192.7/192.8 THz),DWDM	12-Channel Optical Interface, class 1M laser
TNF1EMR412	Enhanced 4-ch Add/Drop Multiplexer,100GHz(192.9/193.0/193.1/193.2 THz),DWDM	12-Channel Optical Interface, class 1M laser
TNF1EMR413	Enhanced 4-ch Add/Drop Multiplexer,100GHz(193.3/193.4/193.5/193.6 THz),DWDM	12-Channel Optical Interface, class 1M laser
TNF1EMR414	Enhanced 4-ch Add/Drop Multiplexer,100GHz(193.7/193.8/193.9/194.0 THz),DWDM	12-Channel Optical Interface, class 1M laser
TNF1EMR415	Enhanced 4-ch Add/Drop Multiplexer,100GHz(194.1/194.2/194.3/194.4 THz),DWDM	12-Channel Optical Interface, class 1M laser
TNF1EMR416	Enhanced 4-ch Add/Drop Multiplexer,100GHz(194.5/194.6/194.7/194.8 THz),DWDM	12-Channel Optical Interface, class 1M laser
TNF1EMR417	Enhanced 4-ch Add/Drop Multiplexer,100GHz(194.9/195.0/195.1/195.2 THz),DWDM	12-Channel Optical Interface, class 1M laser
TNF1EMR418	Enhanced 4-ch Add/Drop Multiplexer,100GHz(195.3/195.4/195.5/195.6 THz),DWDM	12-Channel Optical Interface, class 1M laser
TNF1EMR419	Enhanced 4-ch Add/Drop Multiplexer,100GHz(195.7/195.8/195.9/196.0 THz),DWDM	12-Channel Optical Interface, class 1M laser
TNF1EMR801	Enhanced 8-ch Optical Add/Drop Multiplexing Board,100GHz(192.1/192.2/192.3/192.4/192.	20-Channel Optical Interface,

	5/192.6/192.7/192.8THz),DWDM	class 1M laser
TNF1EMR801JP	Enhanced 8-ch Optical Add/Drop Multiplexing Board,100GHz(192.1/192.2/192.3/192.4/192.5/192.6/192.7/192.8THz),DWDM,Customized Part	20-Channel Optical Interface, class 1M laser
TNF1EMR802	Enhanced 8-ch Optical Add/Drop Multiplexing Board,100GHz(192.9/193.0/193.1/193.2/193.3/193.4/193.5/193.6THz),DWDM	20-Channel Optical Interface, class 1M laser
TNF1EMR802JP	Enhanced 8-ch Optical Add/Drop Multiplexing Board,100GHz(192.9/193.0/193.1/193.2/193.3/193.4/193.5/193.6THz),DWDM,Customized Part	20-Channel Optical Interface, class 1M laser
TNF1EMR803	Enhanced 8-ch Optical Add/Drop Multiplexing Board,100GHz(193.7/193.8/193.9/194.0/194.1/194.2/194.3/194.4THz),DWDM	20-Channel Optical Interface, class 1M laser
TNF1EMR803JP	Enhanced 8-ch Optical Add/Drop Multiplexing Board,100GHz(193.7/193.8/193.9/194.0/194.1/194.2/194.3/194.4THz),DWDM,Customized Part	20-Channel Optical Interface, class 1M laser
TNF1EMR804	Enhanced 8-ch Optical Add/Drop Multiplexing Board,100GHz(194.5/194.6/194.7/194.8/194.9/195.0/195.1/195.2THz),DWDM	20-Channel Optical Interface, class 1M laser
TNF1EMR804JP	Enhanced 8-ch Optical Add/Drop Multiplexing Board,100GHz(194.5/194.6/194.7/194.8/194.9/195.0/195.1/195.2THz),DWDM,Customized Part	20-Channel Optical Interface, class 1M laser
TNF1EMR805	Enhanced 8-ch Optical Add/Drop Multiplexing Board,100GHz(195.3/195.4/195.5/195.6/195.7/195.8/195.9/196.0THz),DWDM	20-Channel Optical Interface, class 1M laser
TNF1EMR805JP	Enhanced 8-ch Optical Add/Drop Multiplexing Board,100GHz(195.3/195.4/195.5/195.6/195.7/195.8/195.9/196.0THz),DWDM,Customized Part	20-Channel Optical Interface, class 1M laser
TNF1EMR2M02	Enhanced 2-ch Add/Drop Multiplexer,100GHz,DWDM	4-Channel Optical Interface, class 1M laser
TNF1MR1M01	1-Channel Optical Add/Drop Multiplexing Board(CWDM)	6-Channel Optical Interface, class 1M laser
TNF1MR1M02	1-Channel Optical Add/Drop Multiplexing Board(DWDM)	6-Channel Optical Interface, class 1M laser
TNF1MR1SM01	Supervisory Channel & 1-Channel Optical Add/Drop Multiplexing Board,CWDM,	8-Channel Optical Interface, class 1M laser
TNF1MR1SM02	Supervisory Channel & 1-Channel Optical Add/Drop Multiplexing Board(DWDM)	8-Channel Optical Interface, class 1M laser
TNF1MR2M01	2-Channel Optical Add/Drop Multiplexing Board(CWDM)	8-Channel Optical Interface, class 1M laser
TNF1MR2M02	2-Channel Optical Add/Drop Multiplexing Board(DWDM)	8-Channel Optical Interface, class 1M laser
TNF1MR401	4-Channel Optical Add/Drop Multiplexing Board(1471/1491/1511/1531nm),CWDM	12-Channel Optical Interface, class 1M laser
TNF1MR402	4-Channel Optical Add/Drop Multiplexing Board(1551/1571/1591/1611nm),CWDM	12-Channel Optical Interface,

		class 1M laser
TNF1MR410	4-Channel Optical Add/Drop Multiplexing Board(192.1/192.2/192.3/192.4THz),DWDM	12-Channel Optical Interface, class 1M laser
TNF1MR4S01	Supervisory Channel & 4-Channel Optical Add/Drop Multiplexing Board(1471/1491/1511/1531nm),CWDM	14-Channel Optical Interface, class 1M laser
TNF1MR4S02	Supervisory Channel & 4-Channel Optical Add/Drop Multiplexing Board(1551/1571/1591/1611nm),CWDM	14-Channel Optical Interface, class 1M laser
TNF1MR4S03	4-ch Add/Drop Multiplexer,with OSC,DWDM	6-Channel Optical Interface, class 1M laser
TNF1MR410JP	4-Channel Optical Add/Drop Multiplexing Board	12-Channel Optical Interface, class 1M laser
TNF1MR411	4-Channel Optical Add/Drop Multiplexing Board(192.5/192.6/192.7/192.8THz),DWDM	12-Channel Optical Interface, class 1M laser
TNF1MR412	4-Channel Optical Add/Drop Multiplexing Board(192.9/193.0/193.1/193.2THz),DWDM	12-Channel Optical Interface, class 1M laser
TNF1MR413	4-Channel Optical Add/Drop Multiplexing Board(193.3/193.4/193.5/193.6THz),DWDM	12-Channel Optical Interface, class 1M laser
TNF1MR414	4-Channel Optical Add/Drop Multiplexing Board(193.7/193.8/193.9/194.0THz),DWDM	12-Channel Optical Interface, class 1M laser
TNF1MR415	4-Channel Optical Add/Drop Multiplexing Board(194.1/194.2/194.3/194.4THz),DWDM	12-Channel Optical Interface, class 1M laser
TNF1MR416	4-Channel Optical Add/Drop Multiplexing Board(194.5/194.6/194.7/194.8THz),DWDM	12-Channel Optical Interface, class 1M laser
TNF1MR417	4-Channel Optical Add/Drop Multiplexing Board(194.9/195.0/195.1/195.2THz),DWDM	12-Channel Optical Interface, class 1M laser
TNF1MR418	4-Channel Optical Add/Drop Multiplexing Board(195.3/195.4/195.5/195.6THz),DWDM	12-Channel Optical Interface, class 1M laser
TNF1MR419	4-Channel Optical Add/Drop Multiplexing Board(195.7/195.8/195.9/196.0THz),DWDM	12-Channel Optical Interface, class 1M laser
TNF1MR801	8-Channel Optical Add/Drop Multiplexing Board(192.1/192.2/192.3/192.4/192.5/192.6/192.7/192.8THz),DWDM	20-Channel Optical Interface, class 1M laser
TNF1MR801JP	8-Channel Optical Add/Drop Multiplexing Board(192.1/192.2/192.3/192.4/192.5/192.6/192.7/192.8THz),DWDM,Customized Part	20-Channel Optical Interface, class 1M laser
TNF1MR802	8-Channel Optical Add/Drop Multiplexing Board(192.9/193.0/193.1/193.2/193.3/193.4/193.5/193.6THz),DWDM	20-Channel Optical Interface, class 1M laser
TNF1MR802JP	8-Channel Optical Add/Drop Multiplexing Board(192.9/193.0/193.1/193.2/193.3/193.4/193.5/193.6THz),DWDM,Customized Part	20-Channel Optical Interface, class 1M laser
TNF1MR803	8-Channel Optical Add/Drop Multiplexing Board(193.7/193.8/193.9/194.0/194.1/194.2/194.3/194.4THz),DWDM	20-Channel Optical Interface, class 1M laser

TNF1MR803JP	8-Channel Optical Add/Drop Multiplexing Board(193.7/193.8/193.9/194.0/194.1/194.2/194.3/194.4THz),DWDM,Customized Part	20-Channel Optical Interface, class 1M laser
TNF1MR804	8-Channel Optical Add/Drop Multiplexing Board(194.5/194.6/194.7/194.8/194.9/195.0/195.1/195.2THz),DWDM	20-Channel Optical Interface, class 1M laser
TNF1MR804JP	8-Channel Optical Add/Drop Multiplexing Board(194.5/194.6/194.7/194.8/194.9/195.0/195.1/195.2THz),DWDM,Customized Part	20-Channel Optical Interface, class 1M laser
TNF1MR805	8-Channel Optical Add/Drop Multiplexing Board(195.3/195.4/195.5/195.6/195.7/195.8/195.9/196.0THz),DWDM	20-Channel Optical Interface, class 1M laser
TNF1MR805JP	8-Channel Optical Add/Drop Multiplexing Board(195.3/195.4/195.5/195.6/195.7/195.8/195.9/196.0THz),DWDM,Customized Part	20-Channel Optical Interface, class 1M laser
TNF1MR806	8-Channel Optical Add/Drop Multiplexing Board(192.1/192.2/192.3/192.4/192.5/192.6/192.7/192.8THz),DWDM-Customized Part	20-Channel Optical Interface, class 1M laser
TNF1MR807	8-Channel Optical Add/Drop Multiplexing Board(192.9/193.0/193.1/193.2/193.3/193.4/193.5/193.6THz),DWDM-Customized Part	20-Channel Optical Interface, class 1M laser
TNF1MR808	8-Channel Optical Add/Drop Multiplexing Board(193.7/193.8/193.9/194.0/194.1/194.2/194.3/194.4THz),DWDM-Customized Part	20-Channel Optical Interface, class 1M laser
TNF1MR809	8-Channel Optical Add/Drop Multiplexing Board(194.5/194.6/194.7/194.8/194.9/195.0/195.1/195.2THz),DWDM-Customized Part	20-Channel Optical Interface, class 1M laser
TNF1MR810	8-Channel Optical Add/Drop Multiplexing Board(195.3/195.4/195.5/195.6/195.7/195.8/195.9/196.0THz),DWDM-Customized Part	20-Channel Optical Interface, class 1M laser
TNF1MR811	8-Channel Optical Add/Drop Multiplexing Board(192.1/192.2/192.3/192.4/192.5/192.6/192.7/192.8THz),DWDM Low Insertion Loss Customized Part	10-Channel Optical Interface, class 1M laser
TNF1MR812	8-Channel Optical Add/Drop Multiplexing Board(192.9/193.0/193.1/193.2/193.3/193.4/193.5/193.6THz),DWDM Low Insertion Loss Customized Part	10-Channel Optical Interface, class 1M laser
TNF1MR822	8-ch Add/Drop Multiplexer(1271/1291/1311/1331/1351/1371/1431/1451nm),CWDM	10-Channel Optical Interface, class 1M laser
TNF1MR823	8-ch Add/Drop Multiplexer(1271/1291/1311/1331/1351/1371/1431/1451nm),CWDM	10-Channel Optical Interface, class 1M laser
TNF1MD801	8-Channel Multiplexing & Demultiplexing Board(1471/1491/1511/1531/1551/1571/1591/1611nm),CWDM	8-Channel Optical Interface, class 1M laser
TNF1MD8M01	8-ch Add/Drop Multiplexer,with MON,(1471/1491/1511/1531/1551/1571/1591/1611nm),CWDM	8-Channel Optical Interface, class 1M laser
TNF1MD8S01	Supervisory Channel & 8-Channel Multiplexing & Demultiplexing Board(1471/1491/1511/1531/1551/1571/1591/1611nm),CWDM	8-Channel Optical Interface, class 1M laser
TNF1MD16M01	16-ch Add/Drop Multiplexer,with MON,(1311/1331/1351/1371/1391/1411/1431/1451/1471/1491/1511/1531/1551/1571/1591/1611nm),CWDM	18-Channel Optical Interface, class 1M laser
TNF1DMD2M01	Bidirectional 2-Channel Optical Add/Drop	6-Channel Optical

	Multiplexing Board,CWDM	Interface, class 1M laser
TNF1DMD2SM01	Supervisory Channel & Bidirectional 2-Channel Optical Add/Drop Multiplexing Board,CWDM	16-Channel Optical Interface, class 1M laser
TNF1DMD2M02	Bidirectional 2-Channel Optical Add/Drop Multiplexing Board,DWDM	6-Channel Optical Interface, class 1M laser
TNF1SBM1M03	Single Fiber Bidirectional 1-channel Optical Add/Drop Multiplexing Configuration Board(A Side),DWDM	4-Channel Optical Interface, class 1M laser
TNF1SBM2M01	Single Fiber Bidirectional 2-channel Optical Add/Drop Multiplexing Configuration Board(A Side),CWDM	6-Channel Optical Interface, class 1M laser
TNF1SBM2M02	Single Fiber Bidirectional 2-channel Optical Add/Drop Multiplexing Configuration Board(B Side),CWDM	6-Channel Optical Interface, class 1M laser
TNF1SBM2M03	Single Fiber Bidirectional 2-channel Optical Add/Drop Multiplexing Configuration Board(A Side),DWDM	6-Channel Optical Interface, class 1M laser
TNF1SBM2M04	Single Fiber Bidirectional 2-channel Optical Add/Drop Multiplexing Configuration Board(B Side),DWDM	6-Channel Optical Interface, class 1M laser
TNF1SBM401	Single Fiber Bidirectional 4-channel Optical Add/Drop Multiplexing Configuration Board(A Side),CWDM	10-Channel Optical Interface, class 1M laser
TNF1SBM401JP	Single Fiber Bidirectional 4-channel Optical Add/Drop Multiplexing Configuration Board(A Side),CWDM,Customized Part	10-Channel Optical Interface, class 1M laser
TNF1SBM402	Single Fiber Bidirectional 4-channel Optical Add/Drop Multiplexing Configuration Board(B Side),CWDM	10-Channel Optical Interface, class 1M laser
TNF1SBM402JP	Single Fiber Bidirectional 4-channel Optical Add/Drop Multiplexing Configuration Board(B Side),CWDM,Customized Part	10-Channel Optical Interface, class 1M laser
TNF1SBM403	Single Fiber Bidirectional 4-channel Optical Add/Drop Multiplexing Configuration Board(A Side),CWDM-Customized Part	10-Channel Optical Interface, class 1M laser
TNF1SBM404	Single Fiber Bidirectional 4-channel Optical Add/Drop Multiplexing Configuration Board(B Side),CWDM-Customized Part	10-Channel Optical Interface, class 1M laser
TNF1SBM801	Single Fiber Bidirectional 8-channel Optical Add/Drop Multiplexing Configuration Board,CWDM	10-Channel Optical Interface, class 1M laser
TNF1SBM803	Single Fiber Bidirectional 8-channel Optical Add/Drop Multiplexing Configuration Board(A Side),DWDM	10-Channel Optical Interface, class 1M laser
TNF1SBM803JP	Single Fiber Bidirectional 8-channel Optical Add/Drop Multiplexing Configuration Board(A Side),DWDM,Customized Part	10-Channel Optical Interface, class 1M laser
TNF1SBM804	Single Fiber Bidirectional 8-channel Optical Add/Drop Multiplexing Configuration Board(B Side),DWDM	10-Channel Optical Interface, class 1M laser
TNF1SBM804JP	Single Fiber Bidirectional 8-channel Optical Add/Drop Multiplexing Configuration Board(B Side),DWDM,Customized Part	10-Channel Optical Interface, class 1M laser
TNF1SBM805	Single Fiber Bidirectional 8-channel Optical Add/Drop Multiplexing Configuration Board(A Side),DWDM-Customized Part	10-Channel Optical Interface, class 1M laser

TNF1SBM806	Single Fiber Bidirectional 8-channel Optical Add/Drop Multiplexing Configuration Board(B Side),DWDM-Customized Part	10-Channel Optical Interface, class 1M laser
TNF1SBM811	Single Fiber Bidirectional 8-channel Optical Add/Drop Multiplexing Board,CWDM	9-Channel Optical Interface, class 1M laser
TNF1SBM812	Single Fiber Bidirectional 8-channel Optical Add/Drop Multiplexing Board,CWDM	9-Channel Optical Interface, class 1M laser
TNF1MB1	Bandpass filter 1-channel optical add/drop Multiplexing board	3-Channel Optical Interface, class 1M laser
TNF1MB1JP	Bandpass filter 1-channel optical add/drop Multiplexing board,DWDM,Customized Part	3-Channel Optical Interface, class 1M laser
TNF1X4001	40-Channel Multiplexing/Demultiplexing Board(C_Even,192.10THz~196.00THz,100GHz,LC)	40-Channel Optical Interface, class 1M laser
TNF1X4001JP	40-Channel Multiplexing/Demultiplexing Board(C_Even,192.10THz~196.00THz,100GHz,LC),Customized Part	40-Channel Optical Interface, class 1M laser
TNF1X40-1	40-Channel Multiplexing/Demultiplexing Board(C_Even,192.10THz~196.00THz,100GHz,LC)-Customized Part	40-Channel Optical Interface, class 1M laser
TNF1X40JP	40-Channel Multiplexing/Demultiplexing Board(C_Even,192.10THz~196.00THz,100GHz,LC),Customized Part	40-Channel Optical Interface, class 1M laser
TNF1X40	40-Channel Multiplexing/Demultiplexing Board(C_Even,192.10THz~196.00THz,100GHz,LC)	40-Channel Optical Interface, class 1M laser
TNF1FIU01	Fiber Interface Unit,(CWDM&DWDM),1310nm	6-Channel Optical Interface, class 1M laser
TNF1FIU01JP	Fiber Interface Unit,CWDM&DWDM,1310nm,Customized Part	6-Channel Optical Interface, class 1M laser
TNF1FIU03	Fiber Interface Unit(CWDM&DWDM)-1611nm	6-Channel Optical Interface, class 1M laser
TNF2FIU01	Fiber Interface Unit (CWDM&DWDM),1310nm	6-Channel Optical Interface, class 1M laser
TNW1DIO	Dry Contact 10 Input 4 Output	10 Input 4 Output ALM ports
TNW1PL1	16xE1 Electrical Interface Board	16 E1 ports, SELV
TNF1LDCA	2 x 100Gbit/s Or 10 x 10Gbit/s Multi-rate Ports Wavelength Conversion Board(100G line capacity included, RTU Extension Supported)	2-Channel Optical port, class 1M laser

1, TMB1MD40AFS, TNF2OBU01, TNF2OBU02, TNF1OPM801, TNF1OPM801JP, TNF1ST2, TNF1ST2JP, TNF1AST401, TNF1AST401JP is tested in SYBH (A) 06776265. The TNF1OPM801 and TNF1OPM801JP are packaged together. The TNF1OPM801 is used for the test. The TNF1ST2 and TNF1ST2JP boards are packaged together. Test the TNF1ST2 board. The TNF1AST401 and TNF1AST401JP boards are packaged together. Test the TNF1AST401 board.

2, TMB1LDC, TMK1SLNO, TMK1SL64S, TMK1SL16Q, TMB1SL41O, TMB1SL16S, TMB1EGS4,

TMB1EFS8, TMK1TTA, and TMK1UNQ2 board has been tested or evaluated in SYBH (A) 06574306.

3, Four boards (TNF1TSPB, TNW1PF4E8, TNF1AUX, and TNF1LDCA) have been tested or evaluated in SYBH (A) 06637853, the TNW1DIO, TNW1PL1, and TNW1PF4E8 share the same PCB and use the test data of the TNW1PF4E8 as a reference.

4，TNF1ITL06C, TNF1ITL08C, TNF1ITL08, TNF1ITL06, TNF1ITL06JP, TMB1AST201, TNF1WSMD401, and TNF1WSMD401J P, TNF1WSMD9XF, TNF1DAP, TNF2OBU01JP, TNF1SCS02, TNF1SCS01, TNF1DFIU03, TNF1DFIU04, TNF1DFIU02, TNF1DFIU02 F1DFIU01, TNF1DSFIU01, TNF1DSFIU01JP, TNF1DSFIU02, TNF1EMR410, TNF1EMR411, TNF1EMR412, TNF1EMR413, and TNF1 EMR414, TNF1EMR415, TNF1EMR416, TNF1EMR417, TNF1EMR418, TNF1EMR419, TNF1EMR801, TNF1EMR801JP TNF1EMR802, TNF1EMR802JP, TNF1EMR803, TNF1EMR803JP, TNF1EMR804, TNF1EMR804JP, TNF1EMR805, and TNF1EMR 805JP, TNF1EMR2M02, TNF1MR1M01, TNF1MR2M01, TNF1MR2M02, TNF1MR401, TNF1MR402, TNF1MR410, TNF1MR4S 01, TNF1MR4S02, TNF1MR4S03, TNF1MR410JP, TNF1MR411, TNF1MR412, TNF1MR413, TNF1MR414, TNF1MR415, TNF1MR415 1MR416, TNF1MR417, TNF1MR418, TNF1MR419, TNF1MR801, TNF1MR801JP, TNF1MR802JP, TNF1MR802JP, TNF1MR803, and TNF1MR803 F1MR803JP, TNF1MR804JP, TNF1MR804JP, TNF1MR805JP, TNF1MR806, TNF1MR807, TNF1MR808, and TNF1MR80 9. TNF1MR810, TNF1MR811, TNF1MR812, TNF1MR822, TNF1MR823, TNF1MD801, TNF1MD8M01, TNF1MD8S01, TNF1MD16M 01, TNF1DMD2M01, TNF1DMD2SM01, TNF1DMD2M02, TNF1SBM1M03, TNF1SBM2M01, TNF1SBM2M02, and TNF1SBM 2M03, TNF1SBM2M04, TNF1SBM401, TNF1SBM401JP, TNF1SBM402JP, TNF1SBM402JP, TNF1SBM403, TNF1SBM404, and TNF1SBM404 1SBM801, TNF1SBM803, TNF1SBM803JP, TNF1SBM804, TNF1SBM804JP, TNF1SBM805, TNF1SBM806, TNF1SBM811, and TNF1SBM811 F1SBM812, TNF1MB1, TNF1MB1JP, TNF1X4001, TNF1X4001JP, TNF1X40-1, TNF1X40JP, TNF1X40, TNF1FIU01, TNF1FIU01JP, TNF1FIU03 and TNF2FIU01 are passive boards and therefore do not need to be tested.

Abbreviations used in the report:

- normal conditions	**N.C**.	- single fault conditions	**S.F.C**
- functional insulation	**OP**	- basic insulation	**BI**
- double insulation	**DI**	- supplementary insulation	**SI**
- between parts of opposite polarity	**BOP**	- reinforced insulation	**RI**

Indicate used abbreviations (if any)

Attachments:
Attachment 1: European Group Differences and National Differences according to EN 60950-1/ A11:2009/A1:2010/A12:2011/A2:2013. (19 pages)
Attachment 2: National and Group Differences for IEC 60950-1 2nd Ed. +A1:2009 + A2:2013 as per CB Bulletin (68 pages)
Attachment 3: system block diagram (2 pages)
Attachment 4: photo documentation (43 pages)

IEC 60950-1**/A1+ A2**			
Clause	Requirement + Test	Result - Remark	Verdict
1	GENERAL		P
1.5	Components		P
1.5.1	General	Critical components are approved	P
	Comply with IEC 60950-1 or relevant component standard	(see appended table 1.5.1)	P
1.5.2	Evaluation and testing of components	Certified components are used in accordance with their ratings, certifications and they comply with applicable parts of this standard. Components not certified are used in accordance with their ratings and they comply with applicable parts of IEC 60950 and the relevant component standard. Components, for which no relevant IEC-standard exists, have been tested under the conditions occurring in the equipment, using applicable parts of IEC 60950-1.	P
1.5.3	Thermal controls	No thermal controls.	N/A
1.5.4	Transformers	Evaluated as a part of approved power supply	N/A
1.5.5	Interconnecting cables	No interconnecting cables.	N/A
1.5.6	Capacitors bridging insulation	Part of approved AC/DC PSU	N/A
1.5.7	Resistors bridging insulation	Functional	N/A
1.5.7.1	Resistors bridging functional, basic or supplementary insulation		N/A
1.5.7.2	Resistors bridging double or reinforced insulation between a.c. mains and other circuits		N/A
1.5.7.3	Resistors bridging double or reinforced insulation between a.c. mains and antenna or coaxial cable		N/A
1.5.8	Components in equipment for IT power systems	Not intended for IT power system	N/A
1.5.9	Surge suppressors		P
1.5.9.1	General		P
1.5.9.2	Protection of VDRs		P
1.5.9.3	Bridging of functional insulation by a VDR	Functional insulation only	P

IEC 60950-1**/A1+ A2**			
Clause	Requirement + Test	Result - Remark	Verdict
1.5.9.4	Bridging of basic insulation by a VDR	No such components bridging basic insulation	N/A
1.5.9.5	Bridging of supplementary, double or reinforced insulation by a VDR	No such components bridging supplementary, double or reinforced insulation	N/A
1.6	Power interface		P
1.6.1	AC power distribution systems	TN/TT	P
1.6.2	Input current	(see appended table 1.6.2)	P
1.6.3	Voltage limit of hand-held equipment	The equipment is not hand-held.	N/A
1.6.4	Neutral conductor	Evaluated as a part of approved power supply	N/A
1.7	Marking and instructions		P
1.7.1	Power rating and identification markings	The required marking is located on the outside surface of the equipment.	P
1.7.1.1	Power rating marking		P
	Multiple mains supply connections.....:	Each individual mains supply electrical ratings are marked near the input terminal.	P
	Rated voltage(s) or voltage range(s) (V)	Refer to the Rating information at the beginning of this Test Report.	P
	Symbol for nature of supply, for d.c. only.....	⎓	P
	Rated frequency or rated frequency range (Hz)	Refer to the Rating information at the beginning of this Test Report.	N/A
	Rated current (mA or A)	Refer to the Rating information at the beginning of this Test Report.	P
1.7.1.2	Identification markings		P
	Manufacturer's name or trade-mark or identification mark	HUAWEI	P
	Model identification or type reference	See Test item description	P
	Symbol for Class II equipment only	The equipment is Class I	N/A
	Other markings and symbols .....:	The additional marking does not give rise to misunderstandings.	P
1.7.2	Safety instructions and marking	Operating/ installing instructions provided.	P
1.7.2.1	General		P
1.7.2.2	Disconnect devices	A readily accessible disconnect device shall be incorporated in the building installation wiring, which is specified in instruction manual	P

IEC 60950-1**/A1+ A2**			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.2.3	Overcurrent protective device	The EUT provided with fuse as overcurrent protective device	P
1.7.2.4	IT power distribution systems		N/A
1.7.2.5	Operator access with a tool	All areas containing hazard(s) are inaccessible to the operator.	N/A
1.7.2.6	Ozone	The equipment does not generate Ozone	N/A
1.7.3	Short duty cycles	The equipment is intended for continuous operation.	N/A
1.7.4	Supply voltage adjustment .....:	No voltage selector.	N/A
	Methods and means of adjustment; reference to installation instructions .....:		N/A
1.7.5	Power outlets on the equipment .....:	No outlet in the equipment	N/A
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference) .....:	Fuse not located in operator access area, and cross-reference marked.	P
1.7.7	Wiring terminals	Refer below:	P
1.7.7.1	Protective earthing and bonding terminals .....:	Protective earhting conductor is marked with standard earth symbol(IEC 60417-2 No. 5019) near the terminal	P
1.7.7.2	Terminals for a.c. mains supply conductors	The equipment is not permanently connected or provided with a nondetachable power supply cord.	P
1.7.7.3	Terminals for d.c. mains supply conductors	RTN(+)" and "NEG(-)" marked near the DC input terminal	P
1.7.8	Controls and indicators	Refer below:	P
1.7.8.1	Identification, location and marking .....:		N/A
1.7.8.2	Colours .....:	No indicators with colours where safety is involved.	N/A
1.7.8.3	Symbols according to IEC 60417 .....:	The mains switch is marked with the symbols: "O" and "I" (IEC 60417-1 No. 5008 and 5007).	P
1.7.8.4	Markings using figures .....:	No controls use figures.	N/A
1.7.9	Isolation of multiple power sources .....:	Each supply connections are adequately marked.	P
1.7.10	Thermostats and other regulating devices .....:	No thermostats or other regulating devices.	N/A
1.7.11	Durability	The marking withstands required tests.	P
1.7.12	Removable parts	No marking is placed on removable parts.	P

IEC 60950-1**/A1+ A2**			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.13	Replaceable batteries .....:	No such batteries	N/A
	Language(s) .....:		—
1.7.14	Equipment for restricted access locations.....:	The unit must be installed or used in the restricted access location, which stated in instruction	P
2	PROTECTION FROM HAZARDS		P
2.1	Protection from electric shock and energy hazards		P
2.1.1	Protection in operator access areas		P
2.1.1.1	Access to energized parts	No operator access to energized parts.	P
	Test by inspection	No hazardous parts can be accessed	P
	Test with test finger (Figure 2A)	No hazardous parts can be accessed	P
	Test with test pin (Figure 2B)	No hazardous parts can be accessed	P
	Test with test probe (Figure 2C)	Intended for using in restricted access locations. See 2.1.3	P
2.1.1.2	Battery compartments	No battery used	N/A
2.1.1.3	Access to ELV wiring	No ELV wiring	N/A
	Working voltage (Vpeak or Vrms); minimum distance through insulation (mm)	(see appended table 2.10.5)	—
2.1.1.4	Access to hazardous voltage circuit wiring	All accessible parts are separated from internal wiring at hazardous voltage by double or reinforced insulation, complying with 2.10.5 and 3.1.4.	P
2.1.1.5	Energy hazards	No energy hazard in operator access area.	N/A
2.1.1.6	Manual controls	No such manual controls.	N/A
2.1.1.7	Discharge of capacitors in equipment		N/A
	Measured voltage (V); time-constant (s)		—
2.1.1.8	Energy hazards – d.c. mains supply		P
	a) Capacitor connected to the d.c. mains supply	The voltage of capacitor is: 72 V , and the capacitance is : ＜0.1 uF, according to formula :" $E=0.5CU^2X10^{-6}$", The measured stores energy “E” less than 20J	P
	b) Internal battery connected to the d.c. mains supply	No battery in the equipment	N/A
2.1.1.9	Audio amplifiers	No such component	N/A

IEC 60950-1**/A1+ A2**			
Clause	Requirement + Test	Result - Remark	Verdict
2.1.2	Protection in service access areas	Checked by inspection, unintentional contact is unlikely during service operations.	P
2.1.3	Protection in restricted access locations	Unintentional contact/bridging is unlikely.	P
2.2	SELV circuits		P
2.2.1	General requirements	SELV limits are not exceeded under normal condition and after a single fault.	P
2.2.2	Voltages under normal conditions (V)	Within SELV limits.	P
2.2.3	Voltages under fault conditions (V)	Within SELV limits.	P
2.2.4	Connection of SELV circuits to other circuits ..:	Only intended to be connected with SELV circuits	P
2.3	TNV circuits		P
2.3.1	Limits	Under the limit of Ua.c./ 71+ Ud.c./ 120≤1	P
	Type of TNV circuits	TNV-2 (for Phone ports and DC power source)	—
2.3.2	Separation from other circuits and from accessible parts	Basic insulation is provided by approved power supply	P
2.3.2.1	General requirements	SELV circuits or accessible conductive part are connected to protective earthing terminal according to 2.6.1. A separate protective earthing terminal is provied and the installation instruction specified the separed protective earthing terminal be permanently connected to earth	P
2.3.2.2	Protection by basic insulation		P
2.3.2.3	Protection by earthing	The SELV is supplied by earthed SELV.	P
2.3.2.4	Protection by other constructions		N/A
2.3.3	Separation from hazardous voltages	Double insulation or reinforced insulation must be provided to isolate DC source from the AC mains supply, which stated in instruction	P
	Insulation employed.....	Reinforced insulation or double insulation	—
2.3.4	Connection of TNV circuits to other circuits	TNV-2 to TNV-2	P
	Insulation employed.....	Function Insulation	—

IEC 60950-1**/A1+ A2**			
Clause	Requirement + Test	Result - Remark	Verdict
2.3.5	Test for operating voltages generated externally		N/A
2.4	Limited current circuits		N/A
2.4.1	General requirements	Evaluated as a part of approved power supply	N/A
2.4.2	Limit values		N/A
	Frequency (Hz)		—
	Measured current (mA).....		—
	Measured voltage (V)		—
	Measured circuit capacitance (nF or µF).....		—
2.4.3	Connection of limited current circuits to other circuits		N/A
2.5	Limited power sources		P
	a) Inherently limited output		N/A
	b) Impedance limited output		N/A
	c) Regulating network limited output under normal operating and single fault condition	USB port	P
	d) Overcurrent protective device limited output		N/A
	Max. output voltage (V), max. output current (A), max. apparent power (VA).....	USB: 4.86Vdc, 0.59A, 2.86VA	—
	Current rating of overcurrent protective device (A) .:		—
	Use of integrated circuit (IC) current limiters		
2.6	Provisions for earthing and bonding		P
2.6.1	Protective earthing	All accessible metal parts and SELV circuits are reliably connected to protective earthing terminal.	P
2.6.2	Functional earthing	No functional earthing in this equipment.	N/A
2.6.3	Protective earthing and protective bonding conductors	Refer below:	P
2.6.3.1	General	Refer below:	P
2.6.3.2	Size of protective earthing conductors	No power supply cord provided.	N/A

IEC 60950-1**/A1+ A2**			
Clause	Requirement + Test	Result - Remark	Verdict
	Rated current (A), cross-sectional area (mm^2), AWG.....	For DC input: 25 A, Cross-sectional area at least 2.5 mm^2, 12AWG For AC/HVDC input: 10 A max. 1.00 mm^2 min., 16 AWG	—
2.6.3.3	Size of protective bonding conductors	No bonding conductors.	N/A
	Rated current (A), cross-sectional area (mm^2), AWG.....		—
	Protective current rating (A), cross-sectional area (mm^2), AWG		
2.6.3.4	Resistance of earthing conductors and their terminations; resistance (Ω), voltage drop (V), test current (A), duration (min).....	Test with 40 A, 120s Voltage drop: 0.56 V Max.	P
2.6.3.5	Colour of insulation	Green and yellow.	P
2.6.4	Terminals	Refer below:	P
2.6.4.1	General	Refer below:	P
2.6.4.2	Protective earthing and bonding terminals	Protective earthing terminal is a screw with nut and spring washer	P
	Rated current (A), type, nominal thread diameter (mm).....	For DC input: 25A, protective earthing terminal with 5.0 mm diameter screw	—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors	The protective bonding conducts and PE conductor are not on same terminal.	P
2.6.5	Integrity of protective earthing	Refer below:	P
2.6.5.1	Interconnection of equipment	Interconnected equipment is properly earthed.	P
2.6.5.2	Components in protective earthing conductors and protective bonding conductors	There are no switches or overcurrent protective devices in the protective earthing / bonding conductors.	P
2.6.5.3	Disconnection of protective earth	PE conductor is connected permanently, and the warning sentence as following state in the user manual, “The unit (or system) must be connected to the protection ground before operation permanently.”	P
2.6.5.4	Parts that can be removed by an operator	When installing the unit, always make the ground connection first and disconnect it last, which stated in installation instruction.	P
2.6.5.5	Parts removed during servicing	Protective earthed parts cannot be removed in a way which impairs safety.	P

IEC 60950-1**/A1+ A2**			
Clause	Requirement + Test	Result - Remark	Verdict
2.6.5.6	Corrosion resistance	Suitable materials are used.	P
2.6.5.7	Screws for protective bonding	Screws for earthing connection engage at least two complete threads into metal	P
2.6.5.8	Reliance on telecommunication network or cable distribution system	Protective earthing does not rely on a telecommunication network.	P
2.7	Overcurrent and earth fault protection in primary circuits		P
2.7.1	Basic requirements	Protection provided as part of the building installation.	P
	Instructions when protection relies on building installation		N/A
2.7.2	Faults not simulated in 5.3.7	Protection from faults not covered in 5.3 are provided by installation.	P
2.7.3	Short-circuit backup protection		N/A
2.7.4	Number and location of protective devices .....:		N/A
2.7.5	Protection by several devices		N/A
2.7.6	Warning to service personnel .....:		N/A
2.8	Safety interlocks		N/A
2.8.1	General principles	No such device.	N/A
2.8.2	Protection requirements		N/A
2.8.3	Inadvertent reactivation		N/A
2.8.4	Fail-safe operation		N/A
	Protection against extreme hazard		
2.8.5	Moving parts		N/A
2.8.6	Overriding		N/A
2.8.7	Switches, relays and their related circuits		N/A
2.8.7.1	Separation distances for contact gaps and their related circuits (mm) .....:		N/A
2.8.7.2	Overload test		N/A
2.8.7.3	Endurance test		N/A
2.8.7.4	Electric strength test		N/A
2.8.8	Mechanical actuators		N/A
2.9	Electrical insulation		P

IEC 60950-1**/A1+ A2**			
Clause	Requirement + Test	Result - Remark	Verdict
2.9.1	Properties of insulating materials	Natural rubber, materials containing asbestos and hygroscopic materials are not used as insulation. No driving belts or couplings used.	P
2.9.2	Humidity conditioning		N/A
	Relative humidity (%), temperature (°C)		—
2.9.3	Grade of insulation	The adequate levels of safety insulation is provided and maintained to comply with the requirements of this standard.	P
2.9.4	Separation from hazardous voltages	Reinforced insulation or Double insulation must be provided to isolate DC source form the AC mians supply, which stated in instruction.	P
	Method(s) used	Reinforced insulation or double insulation provided by approved power supply.	—
2.10	Clearances, creepage distances and distances through insulation		N/A
2.10.1	General	Part of approved AC/DC PSU	N/A
2.10.1.1	Frequency		N/A
2.10.1.2	Pollution degrees		N/A
2.10.1.3	Reduced values for functional insualtion		N/A
2.10.1.4	Intervening unconnected conductive parts		N/A
2.10.1.5	Insulation with varying dimensions		N/A
2.10.1.6	Special separation requirements		N/A
2.10.1.7	Insulation in circuits generating starting pulses		N/A
2.10.2	Determination of working voltage		N/A
2.10.2.1	General		N/A
2.10.2.2	RMS working voltage		N/A
2.10.2.3	Peak working voltage		N/A
2.10.3	Clearances		N/A
2.10.3.1	General		N/A
2.10.3.2	Mains transient voltages		N/A
	a) AC mains supply		N/A
	b) Earthed d.c. mains supplies		N/A
	c) Unearthed d.c. mains supplies		N/A
	d) Battery operation		N/A
2.10.3.3	Clearances in primary circuits		N/A

IEC 60950-1**/A1+ A2**			
Clause	Requirement + Test	Result - Remark	Verdict
2.10.3.4	Clearances in secondary circuits		N/A
2.10.3.5	Clearances in circuits having starting pulses		N/A
2.10.3.6	Transients from a.c. mains supply		N/A
2.10.3.7	Transients from d.c. mains supply		N/A
2.10.3.8	Transients from telecommunication networks and cable distribution systems		N/A
2.10.3.9	Measurement of transient voltage levels		N/A
	a) Transients from a mains suplply		N/A
	For an a.c. mains supply		N/A
	For a d.c. mains supply		N/A
	b) Transients from a telecommunication network :		N/A
2.10.4	Creepage distances		N/A
2.10.4.1	General		N/A
2.10.4.2	Material group and caomparative tracking index		N/A
	CTI tests.....		—
2.10.4.3	Minimum creepage distances		N/A
2.10.5	Solid insulation		N/A
2.10.5.1	General		N/A
2.10.5.2	Distances through insulation		N/A
2.10.5.3	Insulating compound as solid insulation		N/A
2.10.5.4	Semiconductor devices		N/A
2.10.5.5.	Cemented joints		N/A
2.10.5.6	Thin sheet material – General		N/A
2.10.5.7	Separable thin sheet material		N/A
	Number of layers (pcs)		—
2.10.5.8	Non-separable thin sheet material		N/A
2.10.5.9	Thin sheet material – standard test procedure		N/A
	Electric strength test		—
2.10.5.10	Thin sheet material – alternative test procedure		N/A
	Electric strength test		—
2.10.5.11	Insulation in wound components		N/A
2.10.5.12	Wire in wound components		N/A

IEC 60950-1**/A1+ A2**			
Clause	Requirement + Test	Result - Remark	Verdict
	Working voltage		N/A
	a) Basic insulation not under stress		N/A
	b) Basic, supplemetary, reinforced insulation		N/A
	c) Compliance with Annex U		N/A
	Two wires in contact inside wound component; angle between 45° and 90°		N/A
2.10.5.13	Wire with solvent-based enamel in wound components		N/A
	Electric strength test		—
	Routine test		N/A
2.10.5.14	Additional insulation in wound components		N/A
	Working voltage		N/A
	- Basic insulation not under stress		N/A
	- Supplemetary, reinforced insulation		N/A
2.10.6	Construction of printed boards		N/A
2.10.6.1	Uncoated printed boards		N/A
2.10.6.2	Coated printed boards		N/A
2.10.6.3	Insulation between conductors on the same inner surface of a printed board		N/A
2.10.6.4	Insulation between conductors on different layers of a printed board		N/A
	Distance through insulation		N/A
	Number of insulation layers (pcs)		N/A
2.10.7	Component external terminations		N/A
2.10.8	Tests on coated printed boards and coated components		N/A
2.10.8.1	Sample preparation and preliminary inspection		N/A
2.10.8.2	Thermal conditioning		N/A
2.10.8.3	Electric strength test		N/A
2.10.8.4	Abrasion resistance test		N/A
2.10.9	Thermal cycling		N/A
2.10.10	Test for Pollution Degree 1 environment and insulating compound		N/A
2.10.11	Tests for semiconductor devices and cemented joints		N/A
2.10.12	Enclosed and sealed parts		N/A

IEC 60950-1**/A1+ A2**			
Clause	Requirement + Test	Result - Remark	Verdict
3	WIRING, CONNECTIONS AND SUPPLY		P
3.1	General		P
3.1.1	Current rating and overcurrent protection	The wiring is suitable for the current they are carrying when the equipment is operating under normal load. Approved power supply will supply the overcurrent protection	P
3.1.2	Protection against mechanical damage	Wire-ways are smooth and free from sharp edges. The internal wiring is suitably fixed by wire ties and is routed away from the DC fans employed in the product.	P
3.1.3	Securing of internal wiring	Internal wiring is secured against excessive strain, loosening of terminals and damage to the conductor insulation.	P
3.1.4	Insulation of conductors	Insulation on internal conductors is considered to be of adequate quality and suitable for the application and the working voltage involved.	P
3.1.5	Beads and ceramic insulators	No beads or similar ceramic insulators on conductors.	N/A
3.1.6	Screws for electrical contact pressure	Screws for electrical contact pressure engage at least two complete threads into the metal parts. Screws made of insulating material are not used where electrical connections, including protective earthing, are involved.	P
3.1.7	Insulating materials in electrical connections	No such materials in electrical connections	N/A
3.1.8	Self-tapping and spaced thread screws	None	N/A
3.1.9	Termination of conductors	All terminations of conductors are reliable secured.	P
	10 N pull test		P
3.1.10	Sleeving on wiring		N/A
3.2	Connection to a mains supply		P
3.2.1	Means of connection	Refer below:	P
3.2.1.1	Connection to an a.c. mains supply		P
3.2.1.2	Connection to a d.c. mains supply	Appliance DC terminal for connection of a detachable power supply cord.	P

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Clause	Requirement + Test	Result - Remark	Verdict
3.2.2	Multiple supply connections		P
3.2.3	Permanently connected equipment		N/A
	Number of conductors, diameter of cable and conduits (mm)		—
3.2.4	Appliance inlets		P
3.2.5	Power supply cords	Power cord is not part of the equipment.	N/A
3.2.5.1	AC power supply cords		N/A
	Type		—
	Rated current (A), cross-sectional area (mm^2), AWG		—
3.2.5.2	DC power supply cords		N/A
3.2.6	Cord anchorages and strain relief		N/A
	Mass of equipment (kg), pull (N)		—
	Longitudinal displacement (mm)		—
3.2.7	Protection against mechanical damage	No sharp points or cutting edges on the equipment surfaces.	P
3.2.8	Cord guards		N/A
	Diameter or minor dimension D (mm); test mass (g)		—
	Radius of curvature of cord (mm).....		—
3.2.9	Supply wiring space		N/A
3.3	Wiring terminals for connection of external conductors		P
3.3.1	Wiring terminals	Screw terminal provided on enclosure served as protective earthing terminal	P
3.3.2	Connection of non-detachable power supply cords		N/A
3.3.3	Screw terminals	Screws together with nuts and spring washers are used	P
3.3.4	Conductor sizes to be connected	Refer below: (For PE conductor)	P
	Rated current (A), cord/cable type, cross-sectional area (mm^2).....	For AC input: 10 A max., 1.00 mm^2 min. For DC input: 25 A , Cross-sectional area at least 2.5 mm^2, 12AWG	—
3.3.5	Wiring terminal sizes	Refer below: (For PE conductor)	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Rated current (A), type, nominal thread diameter (mm)	For AC input: 10 A max., 4.0 mm. For DC input: 25 A, 5.0 mm.	—
3.3.6	Wiring terminal design	Adequate connection. Checked by inspection.	P
3.3.7	Grouping of wiring terminals		N/A
3.3.8	Stranded wire		N/A
3.4	Disconnection from the mains supply		P
3.4.1	General requirement		P
3.4.2	Disconnect devices	A readily accessible disconnected device shall be incorporated in the building installation wiring, which is stated in instruction.	P
3.4.3	Permanently connected equipment		N/A
3.4.4	Parts which remain energized	No parts remain energized after the disconnect device is switched off.	P
3.4.5	Switches in flexible cords	No isolating switch in the cord set.	P
3.4.6	Number of poles - single-phase and d.c. equipment	Rely on building installation.	N/A
3.4.7	Number of poles - three-phase equipment	No such equipment	N/A
3.4.8	Switches as disconnect devices	The switch is not considered the disconnect device, however it is marked with correct symbols in accordance with Sub-clause 1.7.8.3 ("O" and "I").	P
3.4.9	Plugs as disconnect devices	No such component in the equipment	N/A
3.4.10	Interconnected equipment	No interconnections using hazardous voltages.	N/A
3.4.11	Multiple power sources	Adequately marked.	P
3.5	Interconnection of equipment		P
3.5.1	General requirements	The accessible connectors are SELV and are only intended to be connected to other SELV circuits.	P
3.5.2	Types of interconnection circuits	SELV circuits	P
3.5.3	ELV circuits as interconnection circuits	No ELV circuits	N/A
3.5.4	Data ports for additional equipment	No such ports in the equipment	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4	PHYSICAL REQUIREMENTS		P
4.1	Stability		N/A
	Angle of 10°	Fixed equipment.	N/A
	Test force (N)		N/A
4.2	Mechanical strength		P
4.2.1	General	Complies with the requirement also after tests described below are applied.	P
4.2.2	Steady force test, 10 N	No hazard	P
4.2.3	Steady force test, 30 N	No internal enclosure.	N/A
4.2.4	Steady force test, 250 N	Cannot touch the hazard parts and the cl and cr is still comply the requirement	P
4.2.5	Impact test	Refer below:	P
	Fall test	No hazard as result from the steel sphere fall test.	P
	Swing test	No hazard as result from the steel sphere swing test.	P
4.2.6	Drop test; height (mm)	Stationary equipment and Drop test not applicable.	N/A
4.2.7	Stress relief test	No thermal plastic materials used as enclosure of the products contained in this report	N/A
4.2.8	Cathode ray tubes	CRT(s) not used in the equipment.	N/A
	Picture tube separately certified		N/A
4.2.9	High pressure lamps	No high pressure lamps in the equipment.	N/A
4.2.10	Wall or ceiling mounted equipment; force (N) ...	Not intended to be mounted on a wall or ceiling.	N/A
4.3	Design and construction		P
4.3.1	Edges and corners	All edges and corners are rounded and/or smoothed.	P
4.3.2	Handles and manual controls; force (N)..... :	No knobs, grips, handles, lever etc.	N/A
4.3.3	Adjustable controls	No hazardous adjustable controls.	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
4.3.4	Securing of parts	All hazardous parts are fixed to retain position in event of termination failure. Spring washers used together with screws.	P
4.3.5	Connection by plugs and sockets		N/A
4.3.6	Direct plug-in equipment	Not Direct plug-in equipment	N/A
	Torque .....:		—
	Compliance with the relevant mains plug standard .....:		N/A
4.3.7	Heating elements in earthed equipment	No heating elements provided.	N/A
4.3.8	Batteries		N/A
	- Overcharging of a rechargeable battery		N/A
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
4.3.9	Oil and grease	Insulation is not exposed to oil, grease etc.	N/A
4.3.10	Dust, powders, liquids and gases		N/A
4.3.11	Containers for liquids or gases	No containers for liquids or gases in the equipment.	N/A
4.3.12	Flammable liquids .....:	The equipment does not contain flammable liquid.	N/A
	Quantity of liquid (l) .....:		N/A
	Flash point (°C) .....:		N/A
4.3.13	Radiation	Refer below:	P
4.3.13.1	General	Refer below:	P
4.3.13.2	Ionizing radiation	The equipment does not generate ionizing radiation.	N/A
	Measured radiation (pA/kg) .....:		—
	Measured high-voltage (kV) .....:		—
	Measured focus voltage (kV) .....:		—
	CRT markings .....:		—
4.3.13.3	Effect of ultraviolet (UV) radiation on materials	The equipment does not produce significant UV radiation.	N/A
	Part, property, retention after test, flammability classification .....:		N/A
4.3.13.4	Human exposure to ultraviolet (UV) radiation ..:	The equipment does not produce significant UV radiation.	N/A

IEC 60950-1**/A1+ A2**			
Clause	Requirement + Test	Result - Remark	Verdict
4.3.13.5	Lasers (including laser diodes) and LEDs	LEDS with diffuse light for function indication. Lasers are used for data transmission in an optical fibre transmission system. The lasers are Class 1; there is no harmful effect of radiation to persons.	P
4.3.13.5.1	Lasers (including laser laser diodes)	(see separate test report of IEC/EN 60825-1 / IEC/EN 60825-2)	P
	Laser class .....:	class 1 laser	—
4.3.13.5.2	Light emitting diodes (LEDs)		N/A
4.3.13.6	Other types .....:	The equipment does not generate other types of radiation.	N/A
4.4	Protection against hazardous moving parts		P
4.4.1	General	Approved DC fans used.	P
4.4.2	Protection in operator access areas .....:	DC fans employed in the unit are adequately guarded. The blades of DC fans are not accessible with test finger.	P
	Household and home/office document/media shredders	(see Annex EE)	
4.4.3	Protection in restricted access locations .....:	No hazardous moving parts can be accessed.	P
4.4.4	Protection in service access areas	Unintentional contact is not likely in service access areas.	P
4.4.5	Protection against moving fan blades		P
4.4.5.1	General		P
	Not considered to cause pain or injury. a)……..:		N/A
	Is considered to cause pain, not injury. b) ……:		N/A
	Considered to cause injury. c) ……:	Cannot be touched and warning label used.	P
4.4.5.2	Protection for users	Moving fan is not located in an operator access area.	N/A
	Use of symbol or warning ……:		N/A
4.4.5.3	Protection for service persons		P
	Use of symbol or warning ……:	Warning label is used near the fan box.	P

IEC 60950-1**/A1+ A2**			
Clause	Requirement + Test	Result - Remark	Verdict
4.5	Thermal requirements		P
4.5.1	General		P
4.5.2	Temperature tests	(see appended table 4.5)	P
	Normal load condition per Annex L .....:	See L.7	—
4.5.3	Temperature limits for materials	(see appended table 4.5)	P
4.5.4	Touch temperature limits	(see appended table 4.5)	P
4.5.5	Resistance to abnormal heat .....:	Evaluated by approved PSU	P
4.6	Openings in enclosures		P
4.6.1	Top and side openings	Side: No openings. Top: numerous hexagon openings	P
	Dimensions (mm) .....:	Not exceed 5 mm in any direction.	—
4.6.2	Bottoms of fire enclosures	No openings on the bottom.	N/A
	Construction of the bottomm, dimensions (mm) .....:		—
4.6.3	Doors or covers in fire enclosures	No interlock	N/A
4.6.4	Openings in transportable equipment	The unit is not regarded as transportable equipment.	N/A
4.6.4.1	Constructional design measures		N/A
	Dimensions (mm) .....:		—
4.6.4.2	Evaluation measures for larger openings		N/A
4.6.4.3	Use of metallized parts		N/A
4.6.5	Adhesives for constructional purposes	No barrier secured by adhesive inside enclosure.	N/A
	Conditioning temperature (°C), time (weeks) ....:		—
4.7	Resistance to fire		P
4.7.1	Reducing the risk of ignition and spread of flame	Method 1 is used.	P
	Method 1, selection and application of components wiring and materials	(see appended table 4.7)	P
	Method 2, application of all of simulated fault condition tests		P
4.7.2	Conditions for a fire enclosure	Fire enclosure required.	P

IEC 60950-1**/A1+ A2**			
Clause	Requirement + Test	Result - Remark	Verdict
4.7.2.1	Parts requiring a fire enclosure	The following parts require a fire enclosure: - components in secondary circuits supplied by power source which exceed the limits specified in 2.5 - insulated wiring	P
4.7.2.2	Parts not requiring a fire enclosure	The following parts not require a fire enclosure: - wiring and cables insulated with PVC	P
4.7.3	Materials		P
4.7.3.1	General	Appropriate use of components and suitable construction. Components are mounted on material of flammability V-1. See 4.7.2	P
4.7.3.2	Materials for fire enclosures	Metal	P
4.7.3.3	Materials for components and other parts outside fire enclosures		N/A
4.7.3.4	Materials for components and other parts inside fire enclosures	Only electronic components are mounted on V-1 min. PCB. No requirements.	P
4.7.3.5	Materials for air filter assemblies		N/A
4.7.3.6	Materials used in high-voltage components		N/A
5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		P
5.1	Touch current and protective conductor current		P
5.1.1	General	For AC model only	P
5.1.2	Configuration of equipment under test (EUT)	No interconnection of equipment or multiple power sources.	P
5.1.2.1	Single connection to an a.c. mains supply		P
5.1.2.2	Redundant multiple connections to an a.c. mains supply		N/A
5.1.2.3	Simultaneous multiple connections to an a.c. mains supply		N/A
5.1.3	Test circuit	Figure 5A	P
5.1.4	Application of measuring instrument	Measuring instrument D.1 is Used.	P
5.1.5	Test procedure		P
5.1.6	Test measurements		P
	Supply voltage (V) .....:	264 V/60 Hz	—

IEC 60950-1**/A1+ A2**			
Clause	Requirement + Test	Result - Remark	Verdict
	Measured touch current (mA) .....:	2.09 mA Max.	—
	Max. allowed touch current (mA) .....:	3.5 mA	—
	Measured protective conductor current (mA) ...:		—
	Max. allowed protective conductor current (mA) .....:		—
5.1.7	Equipment with touch current exceeding 3,5 mA		N/A
5.1.7.1	General .....:		N/A
5.1.7.2	Simultaneous multiple connections to the supply		N/A
5.1.8	Touch currents to telecommunication networks and cable distribution systems and from telecommunication networks		N/A
5.1.8.1	Limitation of the touch current to a telecommunication network or to a cable distribution system		N/A
	Supply voltage (V) .....:		—
	Measured touch current (mA) .....:		—
	Max. allowed touch current (mA) .....:		—
5.1.8.2	Summation of touch currents from telecommunication networks		N/A
	a) EUT with earthed telecommunication ports .:		N/A
	b) EUT whose telecommunication ports have no reference to protective earth		N/A
5.2	Electric strength		P
5.2.1	General	(see appended table 5.2)	P
5.2.2	Test procedure	(see appended table 5.2)	P
5.3	Abnormal operating and fault conditions		P
5.3.1	Protection against overload and abnormal operation	(see appended table 5.3)	P
5.3.2	Motors	Approved DC fans used.	P
5.3.3	Transformers	Parts of approved recognized power supply	P
5.3.4	Functional insulation .....:	Complies with c).	P
5.3.5	Electromechanical components	No electromechanical components in secondary circuits.	N/A

IEC 60950-1**/A1+ A2**			
Clause	Requirement + Test	Result - Remark	Verdict
5.3.6	Audio amplifiers in ITE .....:	No such component in the equipment	N/A
5.3.7	Simulation of faults	(see appended Table 5.3)	P
5.3.8	Unattended equipment		N/A
5.3.9	Compliance criteria for abnormal operating and fault conditions		P
5.3.9.1	During the tests	No fire or molten metal occurred and no deformation of enclosure during the tests.	P
5.3.9.2	After the tests	Electric strength test is made on functional insulation.	P
6	CONNECTION TO TELECOMMUNICATION NETWORKS		P
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		P
6.1.1	Protection from hazardous voltages		N/A
6.1.2	Separation of the telecommunication network from earth		P
6.1.2.1	Requirements		N/A
	Supply voltage (V) .....:		—
	Current in the test circuit (mA) .....:		—
6.1.2.2	Exclusions .....:	Permanently connected to protective earthing.	P
6.2	Protection of equipment users from overvoltages on telecommunication networks		P
6.2.1	Separation requirements		P
6.2.2	Electric strength test procedure		P
6.2.2.1	Impulse test	(see appended table 5.2)	P
6.2.2.2	Steady-state test		N/A
6.2.2.3	Compliance criteria		P
6.3	Protection of the telecommunication wiring system from overheating		N/A
	Max. output current (A) .....:		—
	Current limiting method .....:		—
7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		N/A
7.1	General	No such systems.	N/A

7.2	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		N/A
7.3	Protection of equipment users from overvoltages on the cable distribution system		N/A
7.4	Insulation between primary circuits and cable distribution systems		N/A
7.4.1	General		N/A
7.4.2	Voltage surge test		N/A
7.4.3	Impulse test		N/A

A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		N/A
A.1	Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)		N/A
A.1.1	Samples .....:		—
	Wall thickness (mm) .....:		—
A.1.2	Conditioning of samples; temperature (°C) .....:		N/A
A.1.3	Mounting of samples .....:		N/A
A.1.4	Test flame (see IEC 60695-11-3)		N/A
	Flame A, B, C or D .....:		—
A.1.5	Test procedure		N/A
A.1.6	Compliance criteria		N/A
	Sample 1 burning time (s).....:		—
	Sample 2 burning time (s).....:		—
	Sample 3 burning time (s).....:		—
A.2	Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4)		N/A
A.2.1	Samples, material .....:		—
	Wall thickness (mm) .....:		—
A.2.2	Conditioning of samples; temperature (°C) .....:		N/A
A.2.3	Mounting of samples .....:		N/A
A.2.4	Test flame (see IEC 60695-11-4)		N/A
	Flame A, B or C .....:		—
A.2.5	Test procedure		N/A
A.2.6	Compliance criteria		N/A
	Sample 1 burning time (s).....:		—
	Sample 2 burning time (s).....:		—

	Sample 3 burning time (s).....:		—
A.2.7	Alternative test acc. to IEC 60695-11-5, cl. 5 and 9		N/A
	Sample 1 burning time (s).....:		—
	Sample 2 burning time (s).....:		—
	Sample 3 burning time (s).....:		—
A.3	Hot flaming oil test (see 4.6.2)		N/A
A.3.1	Mounting of samples		N/A
A.3.2	Test procedure		N/A
A.3.3	Compliance criterion		N/A

B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		N/A
B.1	General requirements		N/A
	Position .....:		—
	Manufacturer .....:		—
	Type .....:		—
	Rated values .....:		—
B.2	Test conditions		N/A
B.3	Maximum temperatures	(see appended table 5.3)	N/A
B.4	Running overload test	(see appended table 5.3)	N/A
B.5	Locked-rotor overload test		N/A
	Test duration (days) .....:		—
	Electric strength test: test voltage (V) .....:		—
B.6	Running overload test for d.c. motors in secondary circuits		N/A
B.6.1	General		N/A
B.6.2	Test procedure		N/A
B.6.3	Alternative test procedure		N/A
B.6.4	Electric strength test; test voltage (V) .....:		N/A
B.7	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
B.7.1	General		N/A
B.7.2	Test procedure		N/A
B.7.3	Alternative test procedure		N/A
B.7.4	Electric strength test; test voltage (V) .....:		N/A
B.8	Test for motors with capacitors	(see appended table 5.3)	N/A
B.9	Test for three-phase motors	(see appended table 5.3)	N/A
B.10	Test for series motors		N/A

	Operating voltage (V) .....:		—

C	ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)		N/A
	Position .....:		—
	Manufacturer .....:		—
	Type .....:		—
	Rated values .....:		—
	Method of protection .....:		—
C.1	Overload test	(see appended table 5.3)	N/A
C.2	Insulation	(see appended table 5.2)	N/A
	Protection from displacement of windings.....:		N/A

D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)		P
D.1	Measuring instrument		P
D.2	Alternative measuring instrument		N/A

E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)		N/A
F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10 and Annex G)		N/A

G	ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		N/A
G.1	Clearances		N/A
G.1.1	General		N/A
G.1.2	Summary of the procedure for determining minimum clearances		N/A
G.2	Determination of mains transient voltage (V)		N/A
G.2.1	AC mains supply .....:	;	N/A
G.2.2	Earthed d.c. mains supplies .....:		N/A
G.2.3	Unearthed d.c. mains supplies .....:		N/A
G.2.4	Battery operation .....:		N/A
G.3	Determination of telecommunication network transient voltage (V) .....:		N/A
G.4	Determination of required withstand voltage (V)		N/A
G.4.1	Mains transients and internal repetitive peaks .:		N/A
G.4.2	Transients from telecommunication networks ..:		N/A
G.4.3	Combination of transients		N/A
G.4.4	Transients from cable distribution systems		N/A

G.5	Measurement of transient voltages (V)		N/A
	a) Transients from a mains supply		N/A
	For an a.c. mains supply		N/A
	For a d.c. mains supply		N/A
	b) Transients from a telecommunication network		N/A
G.6	Determination of minimum clearances .....:		N/A

H	ANNEX H, IONIZING RADIATION (see 4.3.13)	N/A

J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		P
	Metal(s) used .....:	Screw: Steel painted with Zn; Enclosure: Steel Nut and washer: Steel painted with Zn Conductor to be connected: Copper The max electrochemical potential is :0.45 V	—
K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.8)		N/A
K.1	Making and breaking capacity		N/A
K.2	Thermostat reliability; operating voltage (V) .....:		N/A
K.3	Thermostat endurance test; operating voltage (V) .....:		N/A
K.4	Temperature limiter endurance; operating voltage (V) .....:		N/A
K.5	Thermal cut-out reliability		N/A
K.6	Stability of operation	(see appended table 5.3)	N/A

L	ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.2)		N/A
L.1	Typewriters		N/A
L.2	Adding machines and cash registers		N/A
L.3	Erasers		N/A
L.4	Pencil sharpeners		N/A
L.5	Duplicators and copy machines		N/A
L.6	Motor-operated files		N/A
L.7	Other business equipment		N/A

M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		P
M.1	Introduction		P

M.2	Method A	Ist1: 10.71 mA Ist2: 5.35 mA	P
M.3	Method B		P
M.3.1	Ringing signal		P
M.3.1.1	Frequency (Hz) .....:	25 Hz	—
M.3.1.2	Voltage (V) .....:	V pk-pk: 147 V V pk: 96 V	—
M.3.1.3	Cadence; time (s), voltage (V) .....:	4.04s；56V	—
M.3.1.4	Single fault current (mA) .....:	102	—
M.3.2	Tripping device and monitoring voltage .....:		P
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		P
M.3.2.2	Tripping device		P
M.3.2.3	Monitoring voltage (V) .....:	58	P

N	ANNEX N, IMPULSE TEST GENERATORS (see 1.5.7.2, 1.5.7.3, 2.10.3.9, 6.2.2.1, 7.3.2, 7.4.3 and Clause G.5)		N/A
N.1	ITU-T impulse test generators		N/A
N.2	IEC 60065 impulse test generator		N/A

P	ANNEX P, NORMATIVE REFERENCES		—
Q	ANNEX Q, Voltage dependent resistors (VDRs) (see 1.5.9.1)		N/A
	a) Preferred climatic categories .....:		N/A
	b) Maximum continuous voltage .....:		N/A
	c) Pulse current .....:		N/A

R	ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		N/A
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6.2)		N/A
R.2	Reduced clearances (see 2.10.3)		N/A

S	ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)		N/A
S.1	Test equipment		N/A
S.2	Test procedure		N/A
S.3	Examples of waveforms during impulse testing		N/A

T	ANNEX T, GUIDANCE ON PROTECTION AGAINST INGRESS OF WATER (see 1.1.2)		N/A
			—

U	ANNEX U, INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION (see 2.10.5.4)		N/A
			—

V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		N/A
V.1	Introduction		N/A
V.2	TN power distribution systems		N/A

W	ANNEX W, SUMMATION OF TOUCH CURRENTS		N/A
W.1	Touch current from electronic circuits		N/A
W.1.1	Floating circuits		N/A
W.1.2	Earthed circuits		N/A
W.2	Interconnection of several equipments		N/A
W.2.1	Isolation		N/A
W.2.2	Common return, isolated from earth		N/A
W.2.3	Common return, connected to protective earth		N/A

X	ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)		N/A
X.1	Determination of maximum input current		N/A
X.2	Overload test procedure		N/A

Y	ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)		N/A
Y.1	Test apparatus .....:		N/A
Y.2	Mounting of test samples .....:		N/A
Y.3	Carbon-arc light-exposure apparatus .....:		N/A
Y.4	Xenon-arc light exposure apparatus .....:		N/A

Z	ANNEX Z, OVERVOLTAGE CATEGORIES (see 2.10.3.2 and Clause G.2)	P

AA	ANNEX AA, MANDREL TEST (see 2.10.5.8)	N/A

BB	ANNEX BB, CHANGES IN THE SECOND EDITION	—

CC	ANNEX CC, Evaluation of integrated circuit (IC) current limiters		N/A
CC.1	General		N/A
CC.2	Test program 1……:		N/A
CC.3	Test program 2……:		N/A

DD	ANNEX DD, Requirements for the mounting means of rack-mounted equipment		N/A
DD.1	General		N/A
DD.2	Mechanical strength test, variable N……..:		N/A
DD.3	Mechanical strength test, 250N, including end stops……:		N/A
DD.4	Compliance……:		N/A

EE	ANNEX EE, Household and home/office document/media shredders		N/A
EE.1	General		N/A
EE.2	Markings and instructions		N/A
	Use of markings or symbols……:		N/A
EE.3	Inadvertent reactivation test……:		N/A
EE.4	Disconnection of power to hazardous moving parts:		N/A
	Use of markings or symbols……:		N/A
EE.5	Protection against hazardous moving parts		N/A
	Test with test finger (Figure 2A) ……:		N/A
	Test with wedge probe (Figure EE1 and EE2) ……:		N/A

1.5.1	TABLE: List of critical components				P
Object/part No.	Manufacturer/ trademark	Type/model	Technical data	Standard (Edition / year)	Mark(s) of conformity[1])
Enclosure Metal	--	--	442mm (W) x 220mm (D) x 88mm (H)	--	--
PCB	Various	Various	V-0, min 130 ℃	UL 796	UL
DC Fan 32030322	AVC	DPPA0833B8F Y001	48 Vd.c., 3.6 A, 145.0 CFM	UL60950-1	UL,E158191
Fuse(F5) on TMK2FAN 19040096	LITTELFUSE INC	0453001.MR	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF001	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E82636
Fuse(F1, F4) on TMK2FAN 19040108	LITTELFUSE INC	0453005.MR	60Vdc min, 5Amax	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF005	60Vdc min, 5Amax	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ5	60Vdc min, 5Amax	UL248/CSA-C22.2 No. 248	UL, E20624
Fuse(F1,F2) on TMB1PIU 19040104	LITTELFUSE INC	0448015.MR	60Vd.c min. , 15 A	UL248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF015	60Vd.c min. , 15 A	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ15	60Vd.c min. , 15 A	UL248/CSA-C22.2 No. 248	UL, E20624
Fuse(F5) on TMB1PIU 19040114	SHENZHEN VICTORS INDUSTRIAL CO LTD	CF12V6T1R50	60Vd.c min. , 1.5 A	UL248/CSA-C22.2 No. 248	UL, E357828
-alternative	LITTELFUSE	046601.5NRHF	60Vd.c min. , 1.5 A	UL248	UL, E10480
Fuse(F15,F23) on TMB1PIU 19040126-001	COOPER BUSSMANN LLC	1025HC	250 V a.c., 30 A	ANSI/UL 248-1	UL, E19180
-alternative	LITTELFUSE INC	456*	60Vdc, min30 A	ANSI/UL 248-1	UL, E10480

-alternative	SHENZHEN VICTORS INDUSTRIAL CO LTD	VF458030	60Vdc, min30 A	UL248/CSA-C22.2 No. 248	UL, E357828
Fuse(F21) on TMB1APIU 19040096	LITTELFUSE INC	0453001.MR	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF001	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E82636
AC PSU	CHINA GREATWALL TECHNOLOGY GROUP CO LTD	PAC1K5S53-AL	AC Input: 100-240Vac, 10A, 50/60Hz DC Output 1: 53.5VDC, 14.95A (AC input 100-176Vac); DC Output 2: 53.5VDC, 28.04A (AC input 176-240Vac) or DC input: 240Vdc, 10A DC Output: 53.5Vdc, 28.04A	UL 60950-1 IEC/EN 60950-1	UL
-alternative	VAPEL	PAC1K5S53-AL	AC Input: 100-240Vac, 50/60Hz, 10A MAX Or DC input: 240Vdc DC Output: 53.5Vdc/800W(input:100-176Vac) 53.5Vdc/1500W (input:176-240Vac or 240Vdc)	UL 60950-1 IEC/EN 60950-1	UL
Fuse(F4) on TMK2UXCL 19040095	LITTELFUSE INC	0453002.MR	60Vd.c min. , 2 A	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF002	60Vd.c min. , 2 A	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ 2	60Vd.c min. , 2 A	UL248/CSA-C22.2 No. 248	UL, E20624
Fuse(F1) on TMK2UXCL 19040097	LITTELFUSE INC	0453007.MR	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 248	UL, E10480

-alternative	CONQUER ELECTRONICS CO LTD	SEF007	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ 7	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 248	UL, E20624
Fuse(F3) on TMK2UXCL 19040108	LITTELFUSE INC	0453005.MR	60Vdc min, 5Amax	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF005	60Vdc min, 5Amax	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ5	60Vdc min, 5Amax	UL248/CSA-C22.2 No. 248	UL, E20624
DC converter (U9) on TMK2UXCL 03025MYX	HUAWEI TECHNOLOGIES CO LTD	GDE25S12B-PB	Rated input: 36-75 Vd.c.; Rated output: 12 V/25 A; EP:20A	UL 60950-1, 2nd Edition+AM1+AM2	UL, E210619
Fuse(F3000) on TMK1EX10 19040095	LITTELFUSE INC	0453002.MR	60Vd.c min. , 2 A	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF002	60Vd.c min. , 2 A	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ 2	60Vd.c min. , 2 A	UL248/CSA-C22.2 No. 248	UL, E20624
Fuse(F3001,F3002) on TMK1EX10 19040108	LITTELFUSE INC	0453005.MR	60Vdc min, 5Amax	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF005	60Vdc min, 5Amax	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ5	60Vdc min, 5Amax	UL248/CSA-C22.2 No. 248	UL, E20624
DC converter (U3011) on TMK1EX10 03025MYD	HUAWEI TECHNOLOGIES CO LTD	GBE30S3V3-B	Rated input: 36-75 Vd.c.; Rated output: 3.3 V; EP: N/A	UL 60950-1, 2nd Edition+AM1+AM2	UL, E210619
Fuse(F5000) on TMB1LDC TMB1LDCD 19040096	LITTELFUSE INC	453*	60 V min, 1 A max	ANSI/UL 248-1	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF*	60 V min, 1 A max	ANSI/UL 248-1	UL, E82636
Fuse(F4,F5) on TMB1LDC TMB1LDCD 19040099	BEL FUSE INC	SSQ*	60 V min, 4 A max	ANSI/UL 248-1	UL, E20624

-alternative	LITTELFUSE INC	453	60 V min, 4 A max	ANSI/UL 248-1	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF*	60 V min, 4 A max	ANSI/UL 248-1	UL, E82636
DC/DC convertor U2013 on TMB1LDC TMB1LDCD 03025MYD	HUAWEI TECHNOLOGIES CO LTD	GBE30S3V3-B	Rated input: 36-75 Vd.c.; Rated output: 3.3 V; EP: N/A	UL 60950-1, 2nd Edition+AM1+AM2	UL, E210619
Fuse(F2,F3) on TMB1ELOM TMB1LDX TMK1SL64S TMK1SL16Q TMK1TTA TMK1UNQ2 19040097	LITTELFUSE INC	0453007.MR	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF007	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ 7	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 248	UL, E20624
Fuse(F5000) on TMB1ELOM TMB1LDX TMK1SL64S TMK1SL16Q TMK1TTA TMK1UNQ2 19040099	BEL FUSE INC	SSQ*	60 V min, 4 A max	ANSI/UL 248-1	UL, E20624
-alternative	LITTELFUSE INC	453	60 V min, 4 A max	ANSI/UL 248-1	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF*	60 V min, 4 A max	ANSI/UL 248-1	UL, E82636
Fuse(F10,F11) on TMB1ELOM TMB1LDX TMK1SL64S TMK1SL16Q TMK1TTA TMK1UNQ2 19040112	LITTELFUSE INC	0453010.MR	125 Vac/ dc, 10 A	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF010	125 Vac/Vdc, 10 A	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ10	125 Vac/86 Vdc, 10 A	UL248/CSA-C22.2 No. 248	UL, E20624
DC/DC convertor U6 on TMB1ELOM TMB1LDX TMK1SL64S TMK1SL16Q TMK1TTA TMK1UNQ2 03025PJK	HUAWEI TECHNOLOGIES CO LTD	GDE25S12B-B	Rated input: 36-75 Vd.c.; Rated output: 12 V/25; EP: N/A	UL 60950-1, 2nd Edition+AM1+AM2	UL, E210619

DC converter (U58) on TNF1SP3DA board 03021FUQ	HUAWEI TECHNOLOGIES CO LTD	GAE15S3V3	Rated input: 36-75 Vdc; Rated output: 3.48 V/21.4 A; EP: 5 A	UL 60950-1, 2nd Edition	UL, E210619-A163-UL
Fuse（F1,F2）on TNF1SP3DA board 19040125	LITTELFUSE INC	0452001.MRL	60 Vd.c. min, 1 A	UL248/CSA-C22.2 No. 248 N/A	UL, E10480 N/A
-alternative	CONQUER ELECTRONICS CO LTD	SET001	60 Vd.c. min, 1 A	UL248/CSA-C22.2 No. 248 N/A	UL, E82636 N/A
-alternative	BEL FUSE INC	SST1	60 Vd.c. min, 1 A	UL248 N/A	UL, E20624 N/A
Fuse（F3）on TNF1SP3DA board 19040096	LITTELFUSE INC	0451001.MRL	60 Vd.c. min, 1 A	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF001	60 Vd.c. min, 1 A	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ 1	60 Vd.c. min, 1 A	UL248/CSA-C22.2 No. 248	UL, E20624
Fuse (F48) on TMB1EMS10 TMB1EGS4 TMB1EFS8 19040096	LITTELFUSE INC	453*	60 V min, 1 A max	ANSI/UL 248-1	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF*	60 V min, 1 A max	ANSI/UL 248-1	UL, E82636
Fuse (F366) on TMB1EMS10 TMB1EGS4 TMB1EFS8 19040097	LITTELFUSE INC	0453007.MR	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 24F8	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF007	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ 7	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 248	UL, E20624
Fuse (F10,F36,F9) on TMB1EMS10 TMB1EGS4 TMB1EFS8 19040099	BEL FUSE INC	SSQ*	60 V min, 4 A max	ANSI/UL 248-1	UL, E20624
-alternative	LITTELFUSE INC	453	60 V min, 4 A max	ANSI/UL 248-1	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF*	60 V min, 4 A max	ANSI/UL 248-1	UL, E82636

DC converter (U7) on TMB1EMS10 TMB1EGS4 TMB1EFS8 03025PJK	HUAWEI TECHNOLOGIES CO LTD	GDE25S12B-B	Rated input: 36-75 Vd.c.; Rated output: 12 V/25; EP: N/A	UL 60950-1, 2nd Edition+AM1+AM2	UL, E210619
Fuse(F5000) on TMK1UNS5 TMK1TDC 19040095	LITTELFUSE INC	0453002.MR	60Vd.c min. , 2 A	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF002	60Vd.c min. , 2 A	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ 2	60Vd.c min. , 2 A	UL248/CSA-C22.2 No. 248	UL, E20624
Fuse(F2，F3) on TMK1UNS5 TMK1TDC 19040097	LITTELFUSE INC	0453007.MR	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF007	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ 7	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 248	UL, E20624
Fuse(F2641,F2679) on TMK1UNS5 TMK1TDC 19040112	LITTELFUSE INC	0453010.MR	60Vdc min, 10 Amax	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF010	60Vdc min, 10 Amax	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ10	60Vdc min, 10 Amax	UL248/CSA-C22.2 No. 248	UL, E20624
DC/DC convertor U6 on TMK1UNS5 TMK1TDC 03025PJK	HUAWEI TECHNOLOGIES CO LTD	GDE25S12B-B	Rated input: 36-75 Vd.c.; Rated output: 12 V/25; EP: N/A	UL 60950-1, 2nd Edition+AM1+AM2	UL, E210619
Fuse(F5000) on TMB1SL41Q TMK1SLNO TMB1SL41O TMB1SL16S 19040095	LITTELFUSE INC	0453002.MR	60Vd.c min. , 2 A	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF002	60Vd.c min. , 2 A	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ 2	60Vd.c min. , 2 A	UL248/CSA-C22.2 No. 248	UL, E20624
Fuse(F2844) on TMB1SL41Q TMK1SLNO TMB1SL41O TMB1SL16S 19040097	LITTELFUSE INC	0453007.MR	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 248	UL, E10480

-alternative	CONQUER ELECTRONICS CO LTD	SEF007	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ 7	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 248	UL, E20624
Fuse(F1,F2) on TMB1SL41Q TMK1SLNO TMB1SL41O TMB1SL16S 19040099	BEL FUSE INC	SSQ*	60 V min, 4 A max	ANSI/UL 248-1	UL, E20624
-alternative	LITTELFUSE INC	453	60 V min, 4 A max	ANSI/UL 248-1	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF*	60 V min, 4 A max	ANSI/UL 248-1	UL, E82636
DC/DC convertor U1018 on TMB1SL41Q TMK1SLNO TMB1SL41O TMB1SL16S 03025PJK	HUAWEI TECHNOLOGIES CO LTD	GDE25S12B-B	Rated input: 36-75 Vd.c.; Rated output: 12 V/25; EP: N/A	UL 60950-1, 2nd Edition+AM1+AM2	UL, E210619
Fuse (F1) on TNF2LDX 19040096	LITTELFUSE INC	0453001.MR	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF001	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E82636
Fuse (F2,F9) on TNF2LDX 19040189	BUSSMANN	CB61F3A-TR2	60Vd.c min. , 3 A	UL248/CSA-C22.2 No. 248	UL, E20624
-alternative	LITTELFUSE INC	0453003.MR	60Vd.c min. , 3 A	UL248/CSA-C22.2 No. 248	UL, E20624
-alternative	CONQUER ELECTRONICS CO LTD	SEF003	60Vd.c min. , 3 A	UL248/CSA-C22.2 No. 248	UL, E20624
DC converter (U1015) on TNF2LDX 03021FYV	HUAWEI TECHNOLOGIES CO LTD	GAE30S3V3	INPUT: -36~-75V dc/ 3.7 A ; OUTPUT: -3.3V/30A	UL 60950-1, 2nd Edition	UL, E210619
Fuse (F3) on TNF2ELOM 19040096	LITTELFUSE INC	0453001.MR	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF001	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E82636
Fuse (F4,F5) on TNF2ELOM 19040189	BUSSMANN	CB61F3A-TR2	60Vd.c min. , 3 A	UL248/CSA-C22.2 No. 248	UL, E20624
-alternative	LITTELFUSE INC	0453003.MR	60Vd.c min. , 3 A	UL248/CSA-C22.2 No. 248	UL, E20624
-alternative	CONQUER ELECTRONICS CO LTD	SEF003	60Vd.c min. , 3 A	UL248/CSA-C22.2 No. 248	UL, E20624

DC converter (U1008) on TNF2ELOM 03021FAG	HUAWEI TECHNOLOGIES CO LTD	GAS15S3V3	Rated input: 36-75 Vd.c.; Rated output: 3.84 V/19.34 A; EP: 5 A	UL 60950-1, 2nd Edition	UL, E210619-A163-UL
Fuse (F13) on TNF2LQM2 19040096	LITTELFUSE INC	0453001.MR	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF001	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E82636
Fuse (F5,F84) on TNF2LQM2 19040095	LITTELFUSE INC	0453002.MR	60Vd.c min. , 2 A	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF002	60Vd.c min. , 2 A	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ 2	60Vd.c min. , 2 A	UL248/CSA-C22.2 No. 248	UL, E20624
DC converter (U28) on TNF2LQM2 03021FUQ	HUAWEI TECHNOLOGIES CO LTD	GAE15S3V3	Rated input: 36-75 Vd.c.; Rated output: 3.48 V/21.4 A; EP: 5 A	UL 60950-1, 2nd Edition	UL, E210619-A163-UL
Fuse(F1) on TNW1DXM 19040096	LITTELFUSE INC	0453001.MR	60Vdc min, 1 Amax	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF001	60Vdc min, 1Amax	UL248/CSA-C22.2 No. 248	UL, E82636
Fuse(F2,F3) on TNW1DXM 19040107	LITTELFUSE INC	0452002.MRL	60Vdc min, 2Amax	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SET002	60Vdc min, 2Amax	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SST2	60Vdc min, 2 Amax	UL248	UL, E20624
DC/DC converter (U2) on TNW1DXM 03022HET	HUAWEI TECHNOLOGIES CO LTD	GBS15S3V3	Rated input: 36-75 Vdc; Rated output: 12.3 V/6.2 A; EP: 20 B	UL 60950-1, 2nd Ed + AM1	UL, E210619
Fuse(F1) on TNW1FXSO12 19040096	LITTELFUSE INC	0453001.MR	60Vdc min, 1 Amax	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF001	60Vdc min, 1Amax	UL248/CSA-C22.2 No. 248	UL, E82636
Fuse(F2,F3) on TNW1FXSO12 19040098	CONQUER ELECTRONICS CO LTD	SET003	60Vdc min, 3 Amax	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SST 3	60Vdc min, 3 Amax	UL248	UL, E20624

-alternative	LITTELFUSE INC	0453004.MR	60Vdc min, 3 Amax	UL248/CSA-C22.2 No. 248	UL, E10480
DC/DC converter (U16) on TNW1FXSO12 03021FAD	HUAWEI TECHNOLOGIES CO LTD	GAS08S12B	Rated input: 36-75 Vd.c.; Rated output: 12.8 V/10.14A; EP: 10 A	UL 60950-1, 2nd Edition	UL, E210619-A163-UL
Fuse(F1) on TNW1AT8 19040096	LITTELFUSE INC	0453001.MR	60Vdc min, 1 Amax	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF001	60Vdc min, 1Amax	UL248/CSA-C22.2 No. 248	UL, E82636
Fuse(F2,F3) on TNW1AT8 19040099	LITTELFUSE INC	0453004.MR	60Vdc min, 4Amax	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF004	60Vdc min, 4Amax	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ 4	60Vdc min, 4Amax	UL248/CSA-C22.2 No. 248	UL, E20624
DC/DC converter (U2) on TNW1AT8 03022HET	HUAWEI TECHNOLOGIES CO LTD	GBS15S3V3	Rated input: 36-75 Vdc; Rated output: 12.3 V/6.2 A; EP: 20 B	UL 60950-1, 2nd Ed + AM1	UL, E210619
Fuse(F1,F423,F424) on TMB1LDCA TMB1LTX TMK1MDCA 19040273	CONQUER ELECTRONICS CO LTD	SEF012	60 V min, 12 A max	ANSI/UL 248-1	UL, E82636
Fuse(F6) on TMB1LDCA TMB1LTX TMK1MDCA 19040096	LITTELFUSE INC	453*	60 V min, 1 A max	ANSI/UL 248-1	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF*	60 V min, 1 A max	ANSI/UL 248-1	UL, E82636
Fuse(F1,F2) on TMB1LDCA TMB1LTX TMK1MDCA 19040097	LITTELFUSE INC	0453007.MR	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF007	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ 7	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 248	UL, E20624

DC/DC convertor U9 on TMB1LDCA TMB1LTX TMK1MDCA 03025MXY	HUAWEI TECHNOLOGIES CO LTD	GDE25S12B-PB	Rated input: 36-75 Vd.c.; Rated output: 12 V/25; EP: 20A	UL 60950-1, 2nd Edition+AM1+AM2	UL, E210619
Fuse(F2，F3) on TMK1GTA 19040097	LITTELFUSE INC	0453007.MR	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF007	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ 7	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 248	UL, E20624
Fuse(F5000) on TMK1GTA 19040099	LITTELFUSE INC	0453004.MR	60Vd.c min. , 4 A	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF004	60Vd.c min. , 4 A	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ 4	60Vd.c min. , 4 A	UL248/CSA-C22.2 No. 248	UL, E20624
Fuse(F10,F11) on TMK1GTA 19040112	LITTELFUSE INC	0453010.MR	60Vdc min, 10 Amax	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF010	60Vdc min, 10 Amax	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ10	60Vdc min, 10 Amax	UL248/CSA-C22.2 No. 248	UL, E20624
DC/DC convertor U6 on TMK1GTA 03025PJK	HUAWEI TECHNOLOGIES CO LTD	GDE25S12B-B	Rated input: 36-75 Vd.c.; Rated output: 12 V/25; EP: N/A	UL 60950-1, 2nd Edition+AM1+AM2	UL, E210619
Fuse(F5000) on TMB1SL41Q 19040095	LITTELFUSE INC	0453002.MR	60Vdc min, 2 Amax	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF002	60Vdc min, 2 Amax	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ 2	60Vdc min, 2 Amax	UL248/CSA-C22.2 No. 248	UL, E20624
Fuse(F2844) on TMB1SL41Q 19040097	LITTELFUSE INC	0453007.MR	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF007	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ 7	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 248	UL, E20624

Fuse(F1,F2) on TMB1SL41Q 19040099	BEL FUSE INC	SSQ*	60 V min, 4 A max	ANSI/UL 248-1	UL, E20624
-alternative	LITTELFUSE INC	453	60 V min, 4 A max	ANSI/UL 248-1	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF*	60 V min, 4 A max	ANSI/UL 248-1	UL, E82636
DC/DC convertor U1018 on TMB1SL41Q 03025PJK	HUAWEI TECHNOLOGIES CO LTD	GDE25S12B-B	Rated input: 36-75 Vd.c.; Rated output: 12 V/25; EP: N/A	UL 60950-1, 2nd Edition+AM1+AM2	UL, E210619
Fuse(F5000) on TMK1TDC 19040095	LITTELFUSE INC	0453002.MR	60Vdc min, 2 Amax	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF002	60Vdc min, 2 Amax	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ 2	60Vdc min, 2 Amax	UL248/CSA-C22.2 No. 248	UL, E20624
Fuse (F2,F3) on TMK1TDC 19040097	LITTELFUSE INC	0453007.MR	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 24F8	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF007	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ 7	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 248	UL, E20624
Fuse (F2641,F2679) on TMK1TDC 19040112	LITTELFUSE INC	0453010.MR	60Vdc min, 10 Amax	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF010	60Vdc min, 10 Amax	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ10	60Vdc min, 10 Amax	UL248/CSA-C22.2 No. 248	UL, E20624
DC/DC convertor U6 on TMK1TDC 03025PJK	HUAWEI TECHNOLOGIES CO LTD	GDE25S12B-B	Rated input: 36-75 Vd.c.; Rated output: 12 V/25; EP: N/A	UL 60950-1, 2nd Edition+AM1+AM2	UL, E210619
Fuse (F1) on TNF1TSPB 19040096	LITTELFUSE INC	453*	60 V min, 1 A max	ANSI/UL 248-1	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF*	60 V min, 1 A max	ANSI/UL 248-1	UL, E82636
Fuse (F2,F5) on TNF1TSPB 19040095	LITTELFUSE INC	0453002.MR	60Vdc min, 2 Amax	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF002	60Vdc min, 2 Amax	UL248/CSA-C22.2 No. 248	UL, E82636

-alternative	BEL FUSE INC	SSQ 2	60Vdc min, 2 Amax	UL248/CSA-C22.2 No. 248	UL, E20624
DC/DC convertor U2 on TNF1TSPB 03021FAG	HUAWEI TECHNOLOGIES CO LTD	GAS15S3V3	Rated input: 36-75 Vd.c.; Rated output: 3.84 V/19.34 A; EP: 5 A	UL 60950-1, 2nd Edition	UL, E210619-A163-UL
Fuse (F401) on TNW1PF4E8 TNW1DIO TNW1PL1 19040096	LITTELFUSE INC	453*	60 V min, 1 A max	ANSI/UL 248-1	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF*	60 V min, 1 A max	ANSI/UL 248-1	UL, E82636
Fuse (F301,F302) on TNW1PF4E8 TNW1DIO TNW1PL1 19040107	LITTELFUSE INC	0452002.MRL	60Vdc min, 2Amax	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SET002	60Vdc min, 2Amax	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SST2	60Vdc min, 2 Amax	UL248	UL, E20624
DC/DC convertor U301 on TNW1PF4E8 TNW1DIO TNW1PL1 03021FAE	HUAWEI TECHNOLOGIES CO LTD	GAS25S3V3B	Rated input: 36-75 Vd.c.; Rated output: 4.4 V/3 2.3A; EP: 10 A	UL 60950-1, 2nd Edition	UL, E210619-A163-UL
Fuse (F1) on TNF1AUX 19040096	LITTELFUSE INC	453*	60 V min, 1 A max	ANSI/UL 248-1	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF*	60 V min, 1 A max	ANSI/UL 248-1	UL, E82636
Fuse (F2) on TNF1AUX 19040099	BEL FUSE INC	SSQ*	60 V min, 4 A max	ANSI/UL 248-1	UL, E20624
-alternative	LITTELFUSE INC	453	60 V min, 4 A max	ANSI/UL 248-1	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF*	60 V min, 4 A max	ANSI/UL 248-1	UL, E82636
Fuse (F5) on TMB1DWS20AFS 19040096	LITTELFUSE INC	453*	60 V min, 1 A max	ANSI/UL 248-1	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF*	60 V min, 1 A max	ANSI/UL 248-1	UL, E82636

Fuse (F2,F3,F647) on TMB1DWS20AFS 19040097	LITTELFUSE INC	0453007.MR	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 24F8	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF007	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ 7	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 248	UL, E20624
Fuse (F4528,F949) on TMB1DWS20AFS 19040105	LITTELFUSE INC	0453012.MR	60Vdc min, 12Amax	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF012	60Vdc min, 12Amax	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ12	60Vdc min, 12Amax	UL248/CSA-C22.2 No. 248	UL, E20624
DC/DC convertor U23 on TMB1DWS20AFS 03025PJK	HUAWEI TECHNOLOGIES CO LTD	GDE25S12B-B	Rated input: 36-75 Vd.c.; Rated output: 12 V/25; EP: N/A	UL 60950-1, 2nd Edition+AM1+AM2	UL, E210619
Fuse (F9) on TMB1MD40AFS 19040096	LITTELFUSE INC	453*	60 V min, 1 A max	ANSI/UL 248-1	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF*	60 V min, 1 A max	ANSI/UL 248-1	UL, E82636
Fuse (F1,F2,F3) on TMB1MD40AFS 19040097	LITTELFUSE INC	0453007.MR	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 24F8	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF007	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ 7	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 248	UL, E20624
DC/DC convertor U29 on TMB1MD40AFS 03025PJK	HUAWEI TECHNOLOGIES CO LTD	GDE25S12B-B	Rated input: 36-75 Vd.c.; Rated output: 12 V/25; EP: N/A	UL 60950-1, 2nd Edition+AM1+AM2	UL, E210619
Fuse (F1,F2,F3,F4) on TMB2SBM3 19040098	CONQUER ELECTRONICS CO LTD	SET003	60Vdc min, 3 Amax	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SST 3	60Vdc min, 3 Amax	UL248	UL, E20624
-alternative	LITTELFUSE INC	0453004.MR	60Vdc min, 3 Amax	UL248/CSA-C22.2 No. 248	UL, E10480

DC/DC convertor U17 on TMB2SBM3 03025YTK-001	HUAWEI TECHNOLOGIES CO LTD	GAS20S5V5-4C	Rated input: 36-75 Vdc; output:5Vdc,20 A; 5.5Vdc,18.2A;EP: 7A	UL 60950-1, 2nd Edition+ AM1	UL, E210619
Fuse (F1,F2,F3) on TNF2OBU01 TNF2OBU01JP TNF2OBU02 19040096	LITTELFUSE INC	0453001.MR	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	CONQUER ELECTRONICS CO LTD	SEF001	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E10480
DC converter (U1) on TNF2OBU01 TNF2OBU01JP TNF2OBU02 03021FUQ	HUAWEI TECHNOLOGIES CO LTD	GAE15S3V3	Rated input: 36-75 Vd.c.; Rated output: 3.48 V/21.4 A; EP: 5 A	UL 60950-1, 2nd Edition	UL, E210619-A163-UL
Fuse (F1,F2,F3,F4) on TNF1OPM801 TNF1OPM801JP 19040096	LITTELFUSE INC	0453001.MR	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	CONQUER ELECTRONICS CO LTD	SEF001	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E10480
DC converter (U10) on TNF1OPM801 TNF1OPM801JP 03021FUQ	HUAWEI TECHNOLOGIES CO LTD	GAE15S3V3	Rated input: 36-75 Vd.c.; Rated output: 3.48 V/21.4 A; EP: 5 A	UL 60950-1, 2nd Edition	UL, E210619-A163-UL
Fuse (F1) on TNF1ST2 TNF1ST2JP 19040096	LITTELFUSE INC	0453001.MR	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	CONQUER ELECTRONICS CO LTD	SEF001	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E10480
Fuse (F3,F4,F5) on TNF1ST2 TNF1ST2JP 19040125	LITTELFUSE INC	0452001.MRL	60 Vd.c. min, 1 A	UL248/CSA-C22.2 No. 248 N/A	UL, E10480 N/A
-alternative	CONQUER ELECTRONICS CO LTD	SET001	60 Vd.c. min, 1 A	UL248/CSA-C22.2 No. 248 N/A	UL, E82636 N/A
-alternative	BEL FUSE INC	SST1	60 Vd.c. min, 1 A	UL248 N/A	UL, E20624 N/A

DC converter (U16) on TNF1ST2 TNF1ST2JP 03021FUQ	HUAWEI TECHNOLOGIES CO LTD	GAE15S3V3	Rated input: 36-75 Vd.c.; Rated output: 3.48 V/21.4 A; EP: 5 A	UL 60950-1, 2nd Edition	UL, E210619-A163-UL
Fuse (F5) on TNF1AST401 TNF1AST401JP 19040096	LITTELFUSE INC	0453001.MR	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	CONQUER ELECTRONICS CO LTD	SEF001	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E10480
Fuse (F1,F2,F3) on TNF1AST401 TNF1AST401JP 19040125	LITTELFUSE INC	0452001.MRL	60 Vd.c. min, 1 A	UL248/CSA-C22.2 No. 248 N/A	UL, E10480 N/A
-alternative	CONQUER ELECTRONICS CO LTD	SET001	60 Vd.c. min, 1 A	UL248/CSA-C22.2 No. 248 N/A	UL, E82636 N/A
-alternative	BEL FUSE INC	SST1	60 Vd.c. min, 1 A	UL248 N/A	UL, E20624 N/A
DC converter (U4) on TNF1AST401 TNF1AST401JP 03021FAG	HUAWEI TECHNOLOGIES CO LTD	GAS15S3V3	Rated input: 36-75 Vd.c.; Rated output: 3.84 V/19.34 A; EP: 5 A	UL 60950-1, 2nd Edition	UL, E210619-A163-UL
Fuse (F4) on TMB1DAP 19040096	LITTELFUSE INC	0453001.MR	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	CONQUER ELECTRONICS CO LTD	SEF001	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E10480
Fuse (F1,F2,F9000) on TMB1DAP 19040099	BEL FUSE INC	SSQ*	60 V min, 4 A max	ANSI/UL 248-1	UL, E20624
-alternative	LITTELFUSE INC	453	60 V min, 4 A max	ANSI/UL 248-1	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF*	60 V min, 4 A max	ANSI/UL 248-1	UL, E82636
DC/DC convertor U501 on TMB1DAP 03025YTK-001	HUAWEI TECHNOLOGIES CO LTD	GAS20S5V5-4C	Rated input: 36-75 Vdc; output:5Vdc,20 A; 5.5Vdc,18.2A;EP: 7A	UL 60950-1, 2nd Edition+ AM1	UL, E210619
Fuse (F2) on TMB1OLP 19040096	LITTELFUSE INC	0453001.MR	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	CONQUER ELECTRONICS CO LTD	SEF001	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E10480

Fuse (F11,F12,F13) on TMB1OLP 19040125	LITTELFUSE INC	0452001.MRL	60 Vd.c. min, 1 A	UL248/CSA-C22.2 No. 248 N/A	UL, E10480 N/A
-alternative	CONQUER ELECTRONICS CO LTD	SET001	60 Vd.c. min, 1 A	UL248/CSA-C22.2 No. 248 N/A	UL, E82636 N/A
-alternative	BEL FUSE INC	SST1	60 Vd.c. min, 1 A	UL248 N/A	UL, E20624 N/A
DC/DC convertor U1012 on TMB1OLP 03025YTK-001	HUAWEI TECHNOLOGIES CO LTD	GAS20S5V5-4C	Rated input: 36-75 Vdc; output:5Vdc,20 A; 5.5Vdc,18.2A;EP: 7A	UL 60950-1, 2nd Edition+ AM1	UL, E210619
Fuse (F2,F3,F4) on TMB1AST201 19040095	LITTELFUSE INC	0453002.MR	60Vdc min, 2 Amax	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF002	60Vdc min, 2 Amax	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ 2	60Vdc min, 2 Amax	UL248/CSA-C22.2 No. 248	UL, E20624
Fuse (F5) on TMB1AST201 19040096	LITTELFUSE INC	0453001.MR	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	CONQUER ELECTRONICS CO LTD	SEF001	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E10480
DC/DC convertor U12 on TMB1AST201 03025YTK-001	HUAWEI TECHNOLOGIES CO LTD	GAS20S5V5-4C	Rated input: 36-75 Vdc; output:5Vdc,20 A; 5.5Vdc,18.2A;EP: 7A	UL 60950-1, 2nd Edition+ AM1	UL, E210619
Fuse (F1) on TNF1ITL06C TNF1ITL08C TNF1ITL06 TNF1ITL08 TNF1ITL06JP 19040096	LITTELFUSE INC	0453001.MR	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	CONQUER ELECTRONICS CO LTD	SEF001	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E10480
Fuse (F3KB) on TNF1DAP 19040096	LITTELFUSE INC	0453001.MR	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	CONQUER ELECTRONICS CO LTD	SEF001	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E10480

Fuse (F1,F2,F9000) on TNF1DAP 19040099	BEL FUSE INC	SSQ*	60 V min, 4 A max	ANSI/UL 248-1	UL, E20624
-alternative	LITTELFUSE INC	453	60 V min, 4 A max	ANSI/UL 248-1	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF*	60 V min, 4 A max	ANSI/UL 248-1	UL, E82636
DC/DC convertor U9000 on TNF1DAP 03024JQH	HUAWEI TECHNOLOGIES CO LTD	GAS08S12B-C	Rated input: 36-75 Vdc; output:12.8Vdc, 10.14A;;EP: 10A	UL 60950-1, 2nd Edition+ AM1	UL, E210619
Fuse (F2,F3,F4) on TNF1WSMD401 TNF1WSMD401JP 19040095	LITTELFUSE INC	0453002.MR	60Vdc min, 2 Amax	UL248/CSA-C22.2 No. 248	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF002	60Vdc min, 2 Amax	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ 2	60Vdc min, 2 Amax	UL248/CSA-C22.2 No. 248	UL, E20624
Fuse (F1) on TNF1WSMD401 TNF1WSMD401JP 19040096	LITTELFUSE INC	0453001.MR	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	CONQUER ELECTRONICS CO LTD	SEF001	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E10480
DC/DC convertor U6 on TNF1WSMD401 TNF1WSMD401JP 03021FJV	HUAWEI TECHNOLOGIES CO LTD	GAE10S05	Rated input: 36-72 Vdc; output:5.88Vdc, 12A;;EP: 5A	UL 60950-1, 2nd Edition+ AM1	UL, E210619
Fuse (F1) on TNF1WSMD9XF 19040096	LITTELFUSE INC	0453001.MR	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	CONQUER ELECTRONICS CO LTD	SEF001	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E10480
Fuse (F2,F3,F4) on TNF1WSMD9XF 19040099	BEL FUSE INC	SSQ*	60 V min, 4 A max	ANSI/UL 248-1	UL, E20624
-alternative	LITTELFUSE INC	453	60 V min, 4 A max	ANSI/UL 248-1	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF*	60 V min, 4 A max	ANSI/UL 248-1	UL, E82636

DC/DC convertor U15 on TNF1WSMD9XF 03022WSB	HUAWEI TECHNOLOGIES CO LTD	GAS20S05-4	Rated input: 36-75 Vdc; output:N/A;EP:20B	UL 60950-1, 2nd Edition+ AM1	UL, E210619
Fuse (F1) on TNF1ITL06C、TNF1ITL08C、TNF1ITL08、TNF1ITL06、TNF1ITL06JP、TMB1AST201、TNF1WSMD401、TNF1WSMD401JPTNF1WSMD9XF、TNF1DAP、TNF2OBU01JP、TNF1SCS02、TNF1SCS01、TNF1DFIU03、TNF1DFIU04、TNF1DFIU02、TNF1DFIU01、TNF1DSFIU01、TNF1DSFIU01JP、TNF1DSFIU02、TNF1EMR410、TNF1EMR411、TNF1EMR412、TNF1EMR413、TNF1EMR414、TNF1EMR415、TNF1EMR416、TNF1EMR417、TNF1EMR418、TNF1EMR419、TNF1EMR801、TNF1EMR801JP、TNF1EMR802、TNF1EMR802JP、TNF1EMR803、TNF1EMR803JP、TNF1EMR804、TNF1EMR804JP、TNF1EMR805、TNF1EMR805JP、TNF1EMR2M02、TNF1MR1M01、TNF1MR2M01、TNF1MR2M02、TNF1MR401、TNF1MR402、TNF1MR410、TNF1MR4S01、TNF1MR4S02、19040096	LITTELFUSE INC	0453001.MR	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	CONQUER ELECTRONICS CO LTD	SEF001	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E10480

Fuse (F1) on TNF1MR4S03、TNF1MR410JP、TNF1MR411、TNF1MR412、TNF1MR413、TNF1MR414、TNF1MR415、TNF1MR416、TNF1MR417、TNF1MR418、TNF1MR419、TNF1MR801、TNF1MR801JP、TNF1MR802、TNF1MR802JP、TNF1MR803、TNF1MR803JP、TNF1MR804、TNF1MR804JP、TNF1MR805、TNF1MR805JP、TNF1MR806、TNF1MR807、TNF1MR808、TNF1MR809、TNF1MR810、TNF1MR811、TNF1MR812、TNF1MR822、TNF1MR823、TNF1MD801、TNF1MD8M01、TNF1MD8S01、TNF1MD16M01、19040096	LITTELFUSE INC	0453001.MR	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	CONQUER ELECTRONICS CO LTD	SEF001	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E10480

Fuse (F1) on TNF1DMD2M01、TNF1DMD2SM01、TNF1DMD2M02、TNF1SBM1M03、TNF1SBM2M01、TNF1SBM2M02、TNF1SBM2M03、TNF1SBM2M04、TNF1SBM401、TNF1SBM401JP、TNF1SBM402、TNF1SBM402JP、TNF1SBM403、TNF1SBM404、TNF1SBM801、TNF1SBM803、TNF1SBM803JP、TNF1SBM804、TNF1SBM804JP、TNF1SBM805、TNF1SBM806、TNF1SBM811、TNF1SBM812、TNF1MB1、TNF1MB1JP、TNF1X4001、TNF1X4001JP、TNF1X40-1、TNF1X40JP、TNF1X40、TNF1FIU01、TNF1FIU01JP、TNF1FIU03、TNF2FIU01 19040096	LITTELFUSE INC	0453001.MR	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	CONQUER ELECTRONICS CO LTD	SEF001	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E10480
Fuse (F3) on TNF1LDCA 19040096	LITTELFUSE INC	0453001.MR	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	CONQUER ELECTRONICS CO LTD	SEF001	60Vd.c min. , 1 A	UL248/CSA-C22.2 No. 248	UL, E10480
Fuse (F4,F5) on TNF1LDCA 19040097	LITTELFUSE INC	0453007.MR	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 24F8	UL, E10480
-alternative	CONQUER ELECTRONICS CO LTD	SEF007	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 248	UL, E82636
-alternative	BEL FUSE INC	SSQ 7	60Vdc min, 7 Amax	UL248/CSA-C22.2 No. 248	UL, E20624

DC/DC convertor U11 on TNF1LDCA 03022JQJ	HUAWEI TECHNOLOGIES CO LTD	GAE15S12B	Rated input: 36-75 Vdc; output:12.45Vdc ;18.3A;EP:20B	UL 60950-1, 2nd Edition+ AM1	UL, E210619
[1]) An asterisk indicates a mark which assures the agreed level of surveillance					
Supplementary information:					

1.5.1	TABLE: Opto Electronic Devices	N/A

Manufacturer .....:

Type.....:

Separately tested.....:

Bridging insulation .....:

External creepage distance .....:

Internal creepage distance .....:

Distance through insulation .....:

Tested under the following conditions .....:

Input.....:

Output.....:

supplementary information

1.6.2	TABLE: Electrical data (in normal conditions)					P
U (V)	I (A)	Irated (A)	P (W)	Fuse #	Ifuse (A)	Condition/status
-40.0 V d.c.	9.89	-	396.3	-	-	1) Max.normal load
-48.0 V d.c.	8.94	25	428.5	-	-	1) Max.normal load
-60.0 V d.c.	7.26	25	435.7	-	-	1) Max.normal load
-72.0 V d.c.	6.17	-	444.3	-	-	1) Max.normal load
-40.0 V d.c.	16.52	-	660.8	-	-	2) Max.normal load
-48.0 V d.c.	14.39	25	691.7	-	-	2) Max.normal load
-60.0 V d.c.	11.49	25	689.4	-	-	2) Max.normal load
-72.0 V d.c.	9.65	-	695.7	-	-	2) Max.normal load
90 V a.c./50 Hz	6.52	-	560.2	-	-	3)Max.normal load The tested with one VAPEL PSU.
100 V a.c. /50 Hz	5.72	10	554.3	-	-	3)Max.normal load The tested with one VAPEL PSU.
240 V a.c. /50 Hz	2.34	10	538.9	-	-	3)Max.normal load The tested with one VAPEL PSU.
264 V a.c. /50 Hz	2.15	-	538.8	-	-	3)Max.normal load The tested with one VAPEL PSU.
90 V a.c. /60 Hz	6.53	-	561.9	-	-	3)Max.normal load The tested with one VAPEL PSU.

100 V a.c. /60 Hz	5.71	10	554.6	-	-	3)Max.normal load The tested with one VAPEL PSU.
240 V a.c. /60 Hz	2.36	10	539.6	-	-	3)Max.normal load The tested with one VAPEL PSU.
264 V a.c. /60 Hz	2.18	-	538.4	-	-	3)Max.normal load The tested with one VAPEL PSU.
192 V d.c.	2.84	-	543.8	-	-	3)Max.normal load The tested with one VAPEL PSU.
240 V d.c.	2.27	6	541.2	-	-	3)Max.normal load The tested with one VAPEL PSU.
288 V d.c.	1.88	-	538.1	-	-	3)Max.normal load The tested with one VAPEL PSU.
90 V a.c./50 Hz	6.24	-	560.2	-	-	4)Max.normal load The tested with one GREAT WALL PSU.
100 V a.c. /50 Hz	5.57	10	556.6	-	-	4)Max.normal load The tested with one GREAT WALL PSU.
240 V a.c. /50 Hz	2.30	10	552.3	-	-	4)Max.normal load The tested with one GREAT WALL PSU.
264 V a.c. /50 Hz	2.09	-	538.9	-	-	4)Max.normal load The tested with one GREAT WALL PSU.
90 V a.c. /60 Hz	6.26	-	538.3	-	-	4)Max.normal load The tested with one GREAT WALL PSU.
100 V a.c. /60 Hz	5.58	10	556.2	-	-	4)Max.normal load The tested with one GREAT WALL PSU.
240 V a.c. /60 Hz	2.30	10	552.8	-	-	4)Max.normal load The tested with one GREAT WALL PSU.
264 V a.c. /60 Hz	2.10	-	539.5	-	-	4)Max.normal load The tested with one GREAT WALL PSU.
192 V d.c.	2.88	-	541.9	-	-	4)Max.normal load The tested with one GREAT WALL PSU.
240 V d.c.	2.30	6	539.2	-	-	4)Max.normal load The tested with one GREAT WALL PSU.
288 V d.c.	1.92	-	538.4	-	-	4)Max.normal load The tested with one GREAT WALL PSU.

-40.0 V d.c.	5.53	-	222.4	-	-	5) Max.normal load
-48.0 V d.c.	5.26	25	252.6	-	-	5) Max.normal load
-60.0 V d.c.	4.27	25	256.2	-	-	5) Max.normal load
-72.0 V d.c.	3.63	-	261.8	-	-	5) Max.normal load
-40.0 V d.c.	5.42	-	216.8	-	-	6) Max.normal load
-48.0 V d.c.	5.15	25	246.9	-	-	6) Max.normal load
-60.0 V d.c.	4.19	25	251.1	-	-	6) Max.normal load
-72.0 V d.c.	3.59	-	258.5	-	-	6) Max.normal load
-40.0 V d.c.	10.46	-	417.8	-	-	7) Max.normal load
-48.0 V d.c.	9.28	25	446.1	-	-	7) Max.normal load
-60.0 V d.c.	7.48	25	449.4	-	-	7) Max.normal load
-72.0 V d.c.	6.34	-	454.5	-	-	7) Max.normal load

Supplementary information: tested with OSN 1800 II PRO SYBH(A)06388882

1) : configuration 1

TMK2UXC	TMK2UXC
TMB1SL16S	TMK1EX10
TMK1SLNO	TNF2LQM2
TMB1EMS10	TMB1ELOM

2) : configuration 2

TMK2UXC	TMK2UXC
TMK1UNS5	TMK1MDCA
TMK1TDC	
TMB1LDCD	TMK1GTA

3): configuration 3

TMK2UXC		TMK2UXC
TMK1UNS5		TMK1MDCA
TMB1APIU	TMB1APIU	TMK1GTA

4): configuration 4

TMK2UXC		TMK2UXC
TMK1UNS5		TMK1MDCA
TMB1APIU	TMB1APIU	TMK1GTA

5): configuration 5 tested with SYBH(A)06776265

TNZ2UXCL		FAN	PIU
TNF1OPM8	TMB1MD40AFS		PIU
TNF1OBU01	TNF1AST4		

6): configuration 6 tested with SYBH(A)06776265

TNZ2UXCL		FAN	PIU
TNF1OPM8	TMB1MD40AFS		PIU
TNF1OBU01	TNF1ST2		

7): configuration 7 tested with SYBH(A)06637853

TMK2UXCL	TMK2UXCL	TMK2FAN	TMB1PIU
TNF1LDCA	TNF1AUX		
	TNW1PF4E8		TMB1PIU
TNF1TSP	TMB1LDCD		

2.1.1.5 c) 1)	**TABLE: max. V, A, VA test**	N/A

Voltage (rated) (V)	Current (rated) (A)	Voltage (max.) (V)	Current (max.) (A)	VA (max.) (VA)
-	-	-	-	-
supplementary information:				

2.1.1.5 c) 2)	TABLE: stored energy	N/A

Capacitance C (µF)	Voltage U (V)	Energy E (J)
-	-	-
-	-	-
supplementary information:		

2.2	TABLE: evaluation of voltage limiting components in SELV circuits	N/A

Component (measured between)	max. voltage (V) (normal operation)		Voltage Limiting Components
	V peak	V d.c.	
-	-	-	-
-	-	-	-
-	-	-	-

Fault test performed on voltage limiting components	Voltage measured (V) in SELV circuits (V peak or V d.c.)
supplementary information:	

2.5	TABLE: limited power sources	P

Circuit output tested: …….USB port

Measured Uoc (V) with all load circuits disconnected: …….5 Vdc

	Isc (A)		VA	
	Meas.	Limit	Meas.	Limit
Normal condition	0.59	8	2.86	100
Single fault: ….. The device (U28) is UL recognized.	-	-	-	-
-	-	-	-	-

supplementary information: tested with OSN 1800 II PRO SYBH(A)06388882

S-c=Short circuit, O-c=Open circuit

2.10.2	Table: working voltage measurement	N/A

Location	RMS voltage (V)	Peak voltage (V)	Comments
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
supplementary information:			

2.10.3 and 2.10.4	TABLE: Clearance and creepage distance measurements					N/A
Clearance (cl) and creepage distance (cr) at/of/between:	U peak (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required cr (mm)	cr (mm)
Functional:						
-	-	-	-	-	-	-
-	-	-	-	-	-	-
Basic/supplementary:						
-	-	-	-	-	-	-
-	-	-	-	-	-	-
Reinforced:						
-	-	-	-	-	-	-
-	-	-	-	-	-	-
Supplementary information:						

2.10.5	TABLE: Distance through insulation measurements					N/A
Distance through insulation (DTI) at/of:	U peak (V)	U rms (V)	Test voltage (V)	Required DTI (mm)	DTI (mm)	
-	-	-	-	-	-	
-	-	-	-	-	-	
Supplementary information:						

4.3.8	TABLE: Batteries		N/A
The tests of 4.3.8 are applicable only when appropriate battery data is not available			
Is it possible to install the battery in a reverse polarity position?			
	Non-rechargeable batteries	Rechargeable batteries	

	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging	
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.
Max. current during normal condition	-	-	-	-	-	-	-	-	-
Max. current during fault condition	-	-	-	-	-	-	-	-	-

Test results:		Verdict
- Chemical leaks	-	-
- Explosion of the battery	-	-
- Emission of flame or expulsion of molten metal	-	-
- Electric strength tests of equipment after completion of tests	-	-
Supplementary information:		

4.3.8	**TABLE: Batteries**	N/A

Battery category .....:
Manufacturer .....:
Type / model.....:
Voltage.....:
Capacity.....:
Tested and Certified by (incl. Ref. No.) .....:
Circuit protection diagram:

MARKINGS AND INSTRUCTIONS (1.7.12, 1.7.15)	
Location of replaceable battery	-
Language(s) ……..:	-
Close to the battery ……..:	-
In the servicing instructions ……:	-
In the operating instructions ……..:	-

4.5	TABLE: Thermal requirements						P
	Supply voltage (V)	-40.0 V d.c.	-72.0 V d.c.	-40.0 V d.c.	-72.0 V d.c.	-	—
	Ambient Tmin (°C)	-	-	-	-	-	—
	Ambient Tmax (°C)	24.1	24.3	50.0	50.0	-	—
Maximum measured temperature T of part/at:		T (°C)					Allowed Tmax (°C)
1.Ambient		24.1	24.3	50.0	50.0	-	-
2.Input connector on PIU		34.0	34.7	59.9	60.4	-	85
3.Input connector JP0701 on TMK2UXC		40.4	40.7	66.3	66.4	-	85
4.DC/DC converter U9 on TMK2UXC		55.9	60.3	81.8	86.0	-	130
5.Heat sink of U3 on TMK2UXC		47.2	47.0	73.1	72.7	-	130
6.Input connector J3005 on TMK1EX10		33.6	33.7	59.5	59.4	-	85
7.DC/DC converter U3011 on TMK1EX10		42.3	44.3	68.2	70.0	-	130
8.Heat sink of HS2 on TMK1EX10		44.8	44.7	70.7	70.4	-	130
9.Input connector J28 on TMF2LQM2		32.0	32.0	57.9	57.7	-	85
10.DC/DC converter U28 on TMF2LQM2		41.7	45.2	67.6	70.9	-	130
11.Heat sink of U1011 on TMF2LQM2		37.8	38.6	63.7	64.3	-	130
12.Input connector J5102 on TMB1ELOM		32.4	32.4	58.3	58.1	-	85
13.DC/DC converter U6 on TMB1ELOM		52.1	59.4	78.0	85.1	-	130
14.Heat sink of U7 on TMB1ELOM		55.5	54.9	81.4	80.6	-	130
15.Input connector J5102 on TMB1SL16S		28.4	28.9	54.3	54.6	-	85
16.DC/DC converter U1018 on TMB1SL16S		42.0	53.6	67.9	79.3	-	130
17.Heat sink of HS3 on TMB1SL16S		34.4	34.7	60.3	60.4	-	130
18.Input connector J5102 on TMK1SLNO		28.2	28.5	54.1	54.2	-	85
19.DC/DC converter U1018 on TMK1SLNO		43.5	54.5	69.4	80.2	-	130
20.Heat sink of HS3 on TMK1SLNO		34.4	34.6	60.3	60.3	-	130
21.Input connector J24 on TMB1EMS10		28.5	28.6	54.4	54.3	-	85
22.DC/DC converter U7 on TMB1EMS10		39.2	45.8	65.1	71.5	-	130
23.Heat sink of U4 on TMB1EMS10		34.8	34.4	60.7	60.1	-	130
24.Top enclosure for EUT		37.4	37.7	63.3	63.4	-	70
25.Enclosure of EUT near openings ventilation		34.4	34.8	60.3	60.5	-	70
26.Front handle enclosure of EUT		27.6	27.8	53.5	53.5	-	60
Supplementary information: tested with OSN 1800 II Pro SYBH(A)06388882 Test configuration same as input test, condition 1)							

Temperature T of winding:	t1 (°C)	R1 (Ω)	t2 (°C)	R2 (Ω)	T (°C)	Allowed Tmax (°C)	Insulation class

-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
Supplementary information:							

4.5	TABLE: Thermal requirements						P
	Supply voltage (V)	-40.0 V d.c.	-72.0 V d.c.	-40.0 V d.c.	-72.0 V d.c.	-	—
	Ambient Tmin (°C)	-	-	-	-	-	—
	Ambient Tmax (°C)	26.0	25.6	50.0	50.0	-	—
Maximum measured temperature T of part/at:		T (°C)					Allowed Tmax (°C)
1.Ambient		26.0	25.6	50.0	50.0	-	-
2.Input connector on PIU		32.3	32.3	56.3	56.7	-	85
3.Input connector JP0701 on TMK2UXC		37.6	37.6	61.6	62.0	-	85
4.Inductor T1 winding on TMK2UXC		38.8	38.9	62.8	63.3	-	90
5.DC/DC converter U9 on TMK2UXC		41.0	43.2	65.0	67.6	-	130
6.Heat sink of U3 on TMK2UXC		36.1	36.3	60.1	60.7	-	130
7.Input connector J5102 on TMK1UNS5		28.8	28.8	52.8	53.2	-	85
8.Inductor T1 winding on TMK1UNS5		31.0	29.9	55.0	54.3	-	90
9.DC/DC converter U6 on TMK1UNS5		43.0	49.4	67.0	73.8	-	130
10. Heat sink of HS2600 on TMK1UNS5		46.1	45.9	70.1	70.3	-	130
11.Input connector J5102 on TMK1MDCA		33.2	32.6	57.2	57.0	-	85
12.Inductor T1 winding on TMK1MDCA		39.7	38.7	63.7	63.1	-	90
13.DC/DC converter U9 on TMK1MDCA		43.2	47.5	67.2	71.9	-	130
14.Heat sink of HS2 on TMK1MDCA		54.9	54.8	78.9	79.2	-	130
15.Input connector J5102 on TMK1GTA		30.9	30.8	54.9	55.2	-	85
16.Inductor T1 winding on TMK1GTA		41.0	39.8	65.0	64.2	-	90
17.DC/DC converter U6 on TMK1GTA		46.1	49.9	70.1	74.3	-	130
18. Heat sink of U7 on TMK1GTA		52.2	52.1	76.2	76.5	-	130
19.Input connector J5102 on TMK1TDC		28.6	28.6	52.6	53.0	-	85
20.Inductor T1 winding on TMK1TDC		30.2	29.3	54.2	53.7	-	90
21.DC/DC converter U6 on TMK1TDC		43.0	50.2	67.0	74.6	-	130
22. Heat sink of HS2600 on TMK1TDC		46.3	46.3	70.3	70.7	-	130
23.Input connector J5102 on TMB1LDCD		29.1	28.9	53.1	53.3	-	85
24.Inductor T1 winding on TMB1LDCD		31.2	30.3	55.2	54.7	-	90
25.DC/DC converter U2013 on TMB1LDCD		45.4	47.8	69.4	72.2	-	130
26. Heat sink of U2 on TMB1LDCD		39.0	38.9	63.0	63.3	-	130
27.Top enclosure for EUT		36.5	36.6	60.5	61.0	-	70

28.Enclosure of EUT near openings ventilation	34.7	34.7	58.7	59.1	-	70
29.Front handle enclosure of EUT	27.5	27.5	51.5	51.9	-	60

Supplementary information: tested with OSN 1800 II Pro SYBH(A)06388882
Test configuration same as input test, condition 2)

Temperature T of winding:	t1 (°C)	R1 (Ω)	t2 (°C)	R2 (Ω)	T (°C)	Allowed Tmax (°C)	Insulation class
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Supplementary information:

4.5	TABLE: Thermal requirements						P
	Supply voltage (V)	90 V a.c.	264 V a.c.	90 V a.c.	264 V a.c.	-	—
	Ambient Tmin (°C)	-	-	-	-	-	—
	Ambient Tmax (°C)	23.0	21.9	50.0	50.0	-	—

Maximum measured temperature T of part/at:	T (°C)					Allowed Tmax (°C)
1.Ambient	23.0	21.9	50.0	50.0	-	-
2. AC input switch on PSU	22.9	23.2	51.8	51.3	-	85
3.AC input connector on PSU	24.9	24.3	53.8	52.4	-	70
4.Transformer T2 core on PSU	38.2	38.2	67.1	66.3	-	110
5.Transformer T3 core on PSU	32.5	33.1	61.4	61.2	-	130
6.Transformer T3 winding on PSU	35.7	36.2	64.6	64.3	-	130
7.Transformer T4 core on PSU	30.1	30.7	59.0	58.8	-	130
8.Input connector JP0701 on TMK2UXC	27.5	28.2	56.4	56.3	-	85
9.Inductor T1 winding on TMK2UXC	34.8	35.5	63.7	63.6	-	90
10.DC/DC converter U9 on TMK2UXC	47.6	48.2	76.5	76.3	-	130
11.Heat sink of U3 on TMK2UXC	35.3	35.9	64.2	64.0	-	130
12.Input connector J5102 on TMK1UNS5	23.0	23.6	51.9	51.7	-	85
13.Inductor T1 winding on TMK1UNS5	26.5	27.1	55.4	55.2	-	90
14.DC/DC converter U6 on TMK1UNS5	48.6	49.2	77.5	77.3	-	130
15. Heat sink of HS2600 on TMK1UNS5	51.2	51.4	80.1	79.5	-	130
16.Input connector J5102 on TMK1MDCA	28.7	29.3	57.6	57.4	-	85
17.Inductor T2 winding on TMK1MDCA	41.7	42.1	70.6	70.2	-	90
18.DC/DC converter U9 on TMK1MDCA	51.2	51.6	80.1	79.7	-	130
19. Heat sink of HS2 on TMK1MDCA	69.3	69.9	98.2	98.0	-	130
20.Input connector J5102 on TMK1GTA	27.2	27.6	56.1	55.7	-	85
21.Inductor T1 winding on TMK1GTA	31.3	31.6	60.2	59.7	-	90
22.DC/DC converter U6 on TMK1GTA	53.7	51.8	82.6	79.9	-	130

23. Heat sink of U7 on TMK1GTA	49.3	48.9	78.2	77.0	-	130
24.Top enclosure for EUT	36.5	37.3	65.4	65.4	-	70
25.Enclosure of EUT near openings ventilation	35.5	36.2	64.4	64.3	-	70
26.Front handle enclosure of EUT	21.6	22.9	50.5	51.0	-	60

Supplementary information: tested with OSN 1800 II Pro SYBH(A)06388882
Test configuration same as input test, condition 3) with VAPEL PSU.

Temperature T of winding:	t1 (°C)	R1 (Ω)	t2 (°C)	R2 (Ω)	T (°C)	Allowed Tmax (°C)	Insulation class
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Supplementary information:

4.5	TABLE: Thermal requirements						P
	Supply voltage (V)	192 V d.c.	288 V d.c.	192 V d.c.	288 V d.c.	-	—
	Ambient Tmin (°C)	-	-	-	-	-	—
	Ambient Tmax (°C)	22.1	23.1	50.0	50.0	-	—

Maximum measured temperature T of part/at:	T (°C)					Allowed Tmax (°C)
1.Ambient	22.1	23.1	50.0	50.0	-	-
2. AC input switch on PSU	23.0	24.3	50.9	51.2	-	85
3.AC input connector on PSU	24.3	25.3	52.2	52.2	-	70
4.Transformer T2 core on PSU	38.2	39.4	66.1	66.3	-	110
5.Transformer T3 core on PSU	32.8	34.1	60.7	61.0	-	130
6.Transformer T3 winding on PSU	36.0	37.4	63.9	64.3	-	130
7.Transformer T4 core on PSU	30.5	31.9	58.4	58.8	-	130
8.Input connector JP0701 on TMK2UXC	27.9	29.2	55.8	56.1	-	85
9.Inductor T1 winding on TMK2UXC	35.3	36.6	63.2	63.5	-	90
10.DC/DC converter U9 on TMK2UXC	47.9	49.1	75.8	76.0	-	130
11.Heat sink of U3 on TMK2UXC	35.7	36.9	63.6	63.8	-	130
12.Input connector J5102 on TMK1UNS5	23.4	24.7	51.3	51.6	-	85
13.Inductor T1 winding on TMK1UNS5	27.0	28.4	54.9	55.3	-	90
14.DC/DC converter U6 on TMK1UNS5	48.8	50.2	76.7	77.1	-	130
15. Heat sink of HS2600 on TMK1UNS5	51.0	52.2	78.9	79.1	-	130
16.Input connector J5102 on TMK1MDCA	28.9	30.3	56.8	57.2	-	85
17.Inductor T2 winding on TMK1MDCA	42.0	43.3	69.9	70.2	-	90
18.DC/DC converter U9 on TMK1MDCA	51.2	52.5	79.1	79.4	-	130
19. Heat sink of HS2 on TMK1MDCA	69.3	70.8	97.2	97.7	-	130
20.Input connector J5102 on TMK1GTA	27.5	29.0	55.4	55.9	-	85

21.Inductor T1 winding on TMK1GTA	31.5	32.8	59.4	59.7	-	90
22.DC/DC converter U6 on TMK1GTA	52.4	52.5	80.3	79.4	-	130
23. Heat sink of U7 on TMK1GTA	49.1	49.9	77.0	76.8	-	130
24.Top enclosure for EUT	36.9	38.5	64.8	65.4	-	70
25.Enclosure of EUT near openings ventilation	35.9	37.3	63.8	64.2	-	70
26.Front handle enclosure of EUT	22.3	23.5	50.2	50.4	-	60

Supplementary information: tested with OSN 1800 II Pro SYBH(A)06388882
Test configuration same as input test, condition 3) with VAPEL PSU.

Temperature T of winding:	t1 (°C)	R1 (Ω)	t2 (°C)	R2 (Ω)	T (°C)	Allowed Tmax (°C)	Insulation class
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Supplementary information:

4.5	TABLE: Thermal requirements						P
	Supply voltage (V)	90 V a.c.	264 V a.c.	90 V a.c.	264 V a.c.	-	—
	Ambient Tmin (°C)	-	-	-	-	-	—
	Ambient Tmax (°C)	24.1	23.8	50.0	50.0	-	—

Maximum measured temperature T of part/at:	T (°C)					Allowed Tmax (°C)
1.Ambient	24.1	23.8	50.0	50.0	-	-
2. AC input switch on PSU	27.8	27.2	53.7	53.4	-	85
3.AC input connector on PSU	31.3	28.9	57.2	55.1	-	70
4.Transformer T1 core on PSU	40.4	39.3	66.3	65.5	-	110
5.Transformer T1 winding on PSU	50.8	49.6	76.7	75.8	-	130
6.Transformer T1C core on PSU	38.0	36.5	63.9	62.7	-	130
7.Transformer T1C winding on PSU	38.6	37.2	64.5	63.4	-	130
8.Input connector JP0701 on TMK2UXC	32.9	32.0	58.8	58.2	-	85
9.Inductor T1 winding on TMK2UXC	39.7	39.1	65.6	65.3	-	90
10.DC/DC converter U9 on TMK2UXC	50.9	50.3	76.8	76.5	-	130
11.Heat sink of U3 on TMK2UXC	39.2	38.8	65.1	65.0	-	130
12.Input connector J5102 on TMK1UNS5	28.1	27.2	54.0	53.4	-	85
13.Inductor T1 winding on TMK1UNS5	31.4	30.7	57.3	56.9	-	90
14.DC/DC converter U6 on TMK1UNS5	51.8	51.0	77.7	77.2	-	130
15. Heat sink of HS2600 on TMK1UNS5	52.8	51.8	78.7	78.0	-	130
16.Input connector J5102 on TMK1MDCA	33.9	33.1	59.8	59.3	-	85
17.Inductor T2 winding on TMK1MDCA	44.9	43.9	70.8	70.1	-	90
18.DC/DC converter U9 on TMK1MDCA	53.8	53.1	79.7	79.3	-	130

19. Heat sink of HS2 on TMK1MDCA	69.6	68.7	95.5	94.9	-	130
20.Input connector J5102 on TMK1GTA	32.0	30.9	57.9	57.1	-	85
21.Inductor T1 winding on TMK1GTA	36.3	34.9	62.2	61.1	-	90
22.DC/DC converter U6 on TMK1GTA	53.6	50.0	79.5	76.2	-	130
23. Heat sink of U7 on TMK1GTA	51.2	49.1	77.1	75.3	-	130
24.Top enclosure for EUT	40.7	40.1	66.6	66.3	-	70
25.Enclosure of EUT near openings ventilation	39.9	39.0	65.8	65.2	-	70
26.Front handle enclosure of EUT	26.9	26.7	52.8	52.9	-	60

Supplementary information: tested with OSN 1800 II Pro SYBH(A)06388882
Test configuration same as input test, condition 4) with GREAT WALL PSU.

Temperature T of winding:	t1 (°C)	R1 (Ω)	t2 (°C)	R2 (Ω)	T (°C)	Allowed Tmax (°C)	Insulation class
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Supplementary information:

4.5	TABLE: Thermal requirements						P
	Supply voltage (V)	192 V d.c.	288 V d.c.	192 V d.c.	288 V d.c.	-	—
	Ambient Tmin (°C)	-	-	-	-	-	—
	Ambient Tmax (°C)	25.6	24.9	50.0	50.0	-	—

Maximum measured temperature T of part/at:	T (°C)					Allowed Tmax (°C)
1.Ambient	25.6	24.9	50.0	50.0	-	-
2. AC input switch on PSU	28.6	28.4	53.0	53.5	-	85
3.AC input connector on PSU	30.8	31.8	55.2	56.9	-	70
4.Transformer T1 core on PSU	40.4	40.8	64.8	65.9	-	110
5.Transformer T1 winding on PSU	51.5	51.3	75.9	76.4	-	130
6.Transformer T1C core on PSU	38.2	38.5	62.6	63.6	-	130
7.Transformer T1C winding on PSU	38.9	39.1	63.3	64.2	-	130
8.Input connector JP0701 on TMK2UXC	33.8	33.7	58.2	58.8	-	85
9.Inductor T1 winding on TMK2UXC	40.7	40.4	65.1	65.5	-	90
10.DC/DC converter U9 on TMK2UXC	52.1	51.8	76.5	76.9	-	130
11.Heat sink of U3 on TMK2UXC	40.4	40.1	64.8	65.2	-	130
12.Input connector J5102 on TMK1UNS5	28.9	29.0	53.3	54.1	-	85
13.Inductor T1 winding on TMK1UNS5	32.5	32.5	56.9	57.6	-	90
14.DC/DC converter U6 on TMK1UNS5	53.0	52.7	77.4	77.8	-	130
15. Heat sink of HS2600 on TMK1UNS5	54.0	53.9	78.4	79.0	-	130
16.Input connector J5102 on TMK1MDCA	35.0	34.9	59.4	60.0	-	85

17.Inductor T2 winding on TMK1MDCA	45.8	45.7	70.2	70.8	-	90
18.DC/DC converter U9 on TMK1MDCA	54.9	54.6	79.3	79.7	-	130
19. Heat sink of HS2 on TMK1MDCA	70.9	70.7	95.3	95.8	-	130
20.Input connector J5102 on TMK1GTA	32.9	32.7	57.3	57.8	-	85
21.Inductor T1 winding on TMK1GTA	36.9	37.0	61.3	62.1	-	90
22.DC/DC converter U6 on TMK1GTA	52.5	53.1	76.9	78.2	-	130
23. Heat sink of U7 on TMK1GTA	51.5	51.7	75.9	76.8	-	130
24.Top enclosure for EUT	41.6	41.6	66.0	66.7	-	70
25.Enclosure of EUT near openings ventilation	40.7	40.4	65.1	65.5	-	70
26.Front handle enclosure of EUT	28.0	27.8	52.4	52.9	-	60

Supplementary information: tested with OSN 1800 II Pro SYBH(A)06388882
Test configuration same as input test, condition 4) with GREAT WALL PSU.

Temperature T of winding:	t1 (°C)	R1 (Ω)	t2 (°C)	R2 (Ω)	T (°C)	Allowed Tmax (°C)	Insulation class
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Supplementary information:

4.5	TABLE: Thermal requirements						P
	Supply voltage (V)	-40.0 V d.c.	-72.0 V d.c.	-40.0 V d.c.	-72.0 V d.c.	-	—
	Ambient Tmin (°C)	-	-	-	-	-	—
	Ambient Tmax (°C)	23.9	23.9	50.0	50.0	-	—

Maximum measured temperature T of part/at:	T (°C)					Allowed Tmax (°C)
1.Ambient	23.9	23.9	50.0	50.0	-	-
2.DC input connector on PIU	28.4	29.2	54.5	55.3	-	85
3.Input connector J5 on TMB1MD40AFS	26.9	26.9	53.0	53.0	-	85
4.Inductor T1 winding on TMB1MD40AFS	29.5	29.4	55.6	55.5	-	90
5.DC/DC converter U29 on TMB1MD40AFS	44.9	54.9	71.0	81.0	-	130
6. Heat sink of U10 on TMB1MD40AFS	38.9	39.5	65.0	65.6	-	130
7.Input connector J14 on TNF1OPM8	25.6	25.6	51.7	51.7	-	85
8.Inductor L4 winding on TNF1OPM8	25.6	25.6	51.7	51.7	-	90
9.DC/DC converter U10 on TNF1OPM8	35.4	40.0	61.5	66.1	-	130
10. Chip U5 on TNF1OPM8	27.2	27.1	53.3	53.2	-	130
11.Input connector J5 on TNF1AST4	26.5	26.5	52.6	52.6	-	85
12.Inductor L2 winding on TNF1AST4	28.4	28.4	54.5	54.5	-	90
13.DC/DC converter U4 on TNF1AST4	34.8	39.2	60.9	65.3	-	130
14. Heat sink of U2 on TNF1AST4	35.0	35.4	61.1	61.5	-	130

15.Input connector J13 on TNB2OBU01	25.3	25.3	51.4	51.4	-	85
16.Inductor L12 winding on TNB2OBU01	26.2	26.6	52.3	52.7	-	90
17.DC/DC converter U1 on TNB2OBU01	36.0	40.8	62.1	66.9	-	130
18. Chip U26 on TNB2OBU01	29.1	29.5	55.2	55.6	-	130
19.Top enclosure of EUT	29.6	30.0	55.7	56.1	-	70
20.Enclosure of EUT near openings ventilation	28.8	29.3	54.9	55.4	-	70
21.Hadle enclosure of EUT	25.2	25.4	51.3	51.5	-	60

Supplementary information: tested with SYBH(A)06776265
Test configuration same as input test, condition 5)

Temperature T of winding:	t1 (°C)	R1 (Ω)	t2 (°C)	R2 (Ω)	T (°C)	Allowed Tmax (°C)	Insulation class
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Supplementary information:

4.5	TABLE: Thermal requirements						P
	Supply voltage (V)	-40.0 V d.c.	-72.0 V d.c.	-40.0 V d.c.	-72.0 V d.c.	-	—
	Ambient Tmin (°C)	-	-	-	-	-	—
	Ambient Tmax (°C)	23.9	23.9	50.0	50.0	-	—

Maximum measured temperature T of part/at:	T (°C)					Allowed Tmax (°C)
1.Ambient	23.9	23.9	50.0	50.0	-	-
2.DC input connector on PIU	28.1	28.8	54.2	54.9	-	85
3.Input connector J20 on TNF1ST2	26.4	26.2	52.5	52.3	-	85
4.Inductor T5 winding on TNF1ST2	26.6	26.6	52.7	52.7	-	90
5.DC/DC converter U16 on TNF1ST2	30.6	33.6	56.7	59.7	-	130
6. Heat sink of HS1 on TNF1ST2	29.6	29.7	55.7	55.8	-	130
7.Top enclosure of EUT	29.8	30.2	55.9	56.3	-	70
8.Enclosure of EUT near openings ventilation	29.1	29.4	55.2	55.5	-	70
9.Hadle enclosure of EUT	25.2	25.2	51.3	51.3	-	60

Supplementary information: tested with SYBH(A)06776265
Test configuration same as input test, condition 6)

Temperature T of winding:	t1 (°C)	R1 (Ω)	t2 (°C)	R2 (Ω)	T (°C)	Allowed Tmax (°C)	Insulation class
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Supplementary information:

4.5	TABLE: Thermal requirements	P

	Supply voltage (V)	-40.0 V d.c.	-72.0 V d.c.	-40.0 V d.c.	-72.0 V d.c.	-	—
	Ambient Tmin (°C)	-	-	-	-	-	—
	Ambient Tmax (°C)	23.7	23.6	50.0	50.0	-	—

Maximum measured temperature T of part/at:	T (°C)					Allowed Tmax (°C)
1.Ambient	23.7	23.6	50.0	50.0	-	-
2.Input connector on PIU	30.5	30.9	56.8	57.3	-	85
3.Input connector J14 on TNF1TSPB	25.8	25.7	52.1	52.1	-	85
4.Inductor T2 winding on TNF1TSPB	27.6	27.9	53.9	54.3	-	90
5.DC/DC converter U2 on TNF1TSPB	31.1	34.0	57.4	60.4	-	130
6. Heat sink of U1 on TNF1TSPB	28.0	28.6	54.3	55.0	-	130
7. Input connector J8 on AUX	30.3	30.2	56.6	56.6	-	85
8. Chip U6 on AUX	31.8	31.9	58.1	58.3	-	130
9.Input connector J5 on TNW1PF4E8	27.3	27.3	53.6	53.7	-	85
10.Inductor T301 winding on TNW1PF4E8	32.2	32.6	58.5	59.0	-	90
11.DC/DC converter U301 on TNW1PF4E8	36.8	38.9	63.1	65.3	-	130
12. Heat sink of HS3 on TNW1PF4E8	32.2	32.5	58.5	58.9	-	130
13.Top enclosure for EUT	30.5	30.7	56.8	57.1	-	70
14.Enclosure of EUT near openings ventilation	30.3	30.5	56.6	56.9	-	70
15.Front handle enclosure of EUT	25.3	25.4	51.6	51.8	-	60

Supplementary information: tested with SYBH(A)06637853
Test configuration same as input test, condition 7)

Temperature T of winding:	t1 (°C)	R1 (Ω)	t2 (°C)	R2 (Ω)	T (°C)	Allowed Tmax (°C)	Insulation class
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

Supplementary information:

4.5.5	TABLE: Ball pressure test of thermoplastic parts		N/A
	Allowed impression diameter (mm)	≤ 2 mm	—

Part	Test temperature (°C)	Impression diameter (mm)
-	-	-
-	-	-

Supplementary information:

4.7	TABLE: Resistance to fire				P
Part	Manufacturer of material	Type of material	Thickness (mm)	Flammability class	Evidence

PCB	Various	Various	-	V-0	UL
Supplementary information:					

5.1	**TABLE: touch current measurement**			P
Measured between:	Measured (mA)	Limit (mA)	Comments/conditions	
N to PE	1.89 Max.	3.5	Normal/ Reverse	
supplementary information: Conducted the test with two VAPEL PSUs in configuration 3.				

5.1	**TABLE: touch current measurement**			P
Measured between:	Measured (mA)	Limit (mA)	Comments/conditions	
N to PE	2.09 Max.	3.5	Normal/ Reverse	
supplementary information: Conducted the test with two GREATWALL PSUs in configuration 4.				

5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests			P
Test voltage applied between:	Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdown Yes / No	
Functional:				
DC input to PE	DC	1002V	No	
Supplementary information: tested with OSN 1800 II Pro SYBH(A)06388882 Test configuration same as input test, condition 1) 2)				

5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests			P
Test voltage applied between:	Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdown Yes / No	
Basic:				
AC input to PE	AC	2087V	No	
Reinforced:				
AC/HVDC input to output	AC	3000V	No	
Supplementary information: tested with OSN 1800 II Pro SYBH(A)06388882 Test configuration same as input test, condition 3) Conducted the test with two VAPEL PSUs				

5.2	TABLE: Electric strength tests, impulse tests and voltage surge tests			P
Test voltage applied between:	Voltage shape (AC, DC, impulse, surge)	Test voltage (V)	Breakdown Yes / No	
Basic:				

AC input to PE	AC	1500V	No
Reinforced:			
AC/HVDC input to output	AC	3000V	No
Supplementary information: tested with OSN 1800 II Pro SYBH(A)06388882 Test configuration same as input test, condition 4) Conducted the test with two GREATWALL PSUs			

5.3	TABLE: Fault condition tests					P
	Ambient temperature (°C) :			24		—
	Power source for EUT: Manufacturer, model/type, output rating :			-		—
Component No.	Fault	Supply voltage (V)	Test time	Fuse #	Fuse current (A)	Observation
DC input	Reversed polarity	-60Vd.c	15mins	-	-	EUT do not work. No hazards. NC NT NB
1) R31 and C31 (PIU board)	R31Pin2 and C31 Pin1 S/C	-60Vd.c	15mins	-	-	EUT input current reduced to 0 A. The 30A (F15,F23) fuse is disconnected.Test performed 3 times with same results. No hazards .NC, NT,NB.
1)U9 (TMK2UXC board)	Pin3 and Pin1 S/C	-60Vd.c	15mins	-	-	EUT input current reduced to 6.1A. The 7A (F1) fuse is disconnected.Test performed 3 times with same results. No hazards .NC, NT,NB.
1)U3011 (TMK1EX10 board)	Pin3 and Pin1 S/C	-60Vd.c	15mins	-	-	EUT input current reduced to 6.7A. The 5A (F3001) fuse is disconnected.Test performed 3 times with same results. No hazards .NC, NT,NB.
1)U28 (TNF2LQM2 board)	Pin3 and Pin1 S/C	-60Vd.c	15mins	-	-	EUT input current reduced to 6.9A. The 2A (F5) fuse is disconnected.Test performed 3 times with same results. No hazards .NC, NT,NB.
1)U6 (TMB1ELOM board)	Pin3 and Pin1 S/C	-60Vd.c	15mins	-	-	EUT input current reduced to 6.3A. The 7A (F2,F3) fuse is disconnected.Test performed 3 times with same results. No hazards .NC, NT,NB.
1)U1018 (TMB1SL16S board)	Pin3 and Pin1 S/C	-60Vd.c	15mins	-	-	EUT input current reduced to 6.9A. The 4A (F1,F2) fuse is disconnected.Test performed 3 times with same results. No hazards .NC, NT,NB.
1)U7 (TMB1EMS10board)	Pin3 and Pin1 S/C	-60Vd.c	15mins	-	-	EUT input current reduced to 6.7A. The 4A (F36) fuse is disconnected.Test performed 3 times with same results. No hazards .NC, NT,NB.

1)U1018 (TMK1SLNO board)	Pin3 and Pin1 S/C	-60Vd.c	15mins	-	-	EUT input current reduced to 6.9A. The 4A (F1,F2) fuse is disconnected.Test performed 3 times with same results. No hazards .NC, NT,NB.
2)U6 (TMK1UNS5 board)	Pin3 and Pin1 S/C	-60Vd.c	15mins	-	-	EUT input current reduced to 10.4A. The 7A (F2,F3) fuse is disconnected.Test performed 3 times with same results. No hazards .NC, NT,NB.
2)U6 (TMK1TDC board)	Pin3 and Pin1 S/C	-60Vd.c	15mins	-	-	EUT input current reduced to 10.4A. The 7A (F2,F3) fuse is disconnected.Test performed 3 times with same results. No hazards .NC, NT,NB.
2)U6 (TMK1GTA board)	Pin3 and Pin1 S/C	-60Vd.c	15mins	-	-	EUT input current reduced to 10.3A. The 7A (F2,F3) fuse is disconnected.Test performed 3 times with same results. No hazards .NC, NT,NB.
2)U9 (TMK1MDCA board)	Pin3 and Pin1 S/C	-60Vd.c	15mins	-	-	EUT input current reduced to 9.6A. The 7A (F2) fuse is disconnected.Test performed 3 times with same results. No hazards .NC, NT,NB.
2)U2013 (TMB1LDCD board)	Pin3 and Pin1 S/C	-60Vd.c	15mins	-	-	EUT input current reduced to 10.5 A. The 4A (F4) fuse is disconnected.Test performed 3 times with same results. No hazards .NC, NT,NB.
3)U9 (TMK2UXC board)	Pin3 and Pin1 S/C	240 V a.c.	15mins	-	-	EUT input current reduced to 2A. The 7A (F1) fuse is disconnected.Test performed 3 times with same results. No hazards .NC, NT,NB.
3) 3)U6 (TMK1UNS5 board)	Pin3 and Pin1 S/C	240 V a.c.	15mins	-	-	EUT input current reduced to 2.1A. The 7A (F2,F3) fuse is disconnected.Test performed 3 times with same results. No hazards .NC, NT,NB.
U6 (TMK1GTA board)	Pin3 and Pin1 S/C	240 V a.c.	15mins	-	-	EUT input current reduced to 2A. The 7A (F2,F3) fuse is disconnected.Test performed 3 times with same results. No hazards .NC, NT,NB.
3)U9 (TMK1MDCA board)	Pin3 and Pin1 S/C	240 V a.c.	15mins	-	-	EUT input current reduced to 2.1A.The 7A (F2) fuse is disconnected.Test performed 3 times with same results. No hazards .NC, NT,NB.
4)U9 (TMK2UXC board)	Pin3 and Pin1 S/C	240 V a.c.	15mins	-	-	EUT input current reduced to 2A. The 7A (F1) fuse is disconnected.Test performed 3 times with same results. No hazards .NC, NT,NB.

4)U6 (TMK1UNS5 board)	Pin3 and Pin1 S/C	240 V a.c.	15mins	-	-	EUT input current reduced to 2.1A. The 7A (F2,F3) fuse is disconnected.Test performed 3 times with same results. No hazards .NC, NT,NB.
4)U6 (TMK1GTA board)	Pin3 and Pin1 S/C	240 V a.c.	15mins	-	-	EUT input current reduced to 2A. The 7A (F2,F3) fuse is disconnected.Test performed 3 times with same results. No hazards .NC, NT,NB.
4)U9 (TMK1MDCA board)	Pin3 and Pin1 S/C	240 V a.c.	15mins	-	-	EUT input current reduced to 2.1A.The 7A (F2) fuse is disconnected.Test performed 3 times with same results. No hazards .NC, NT,NB.
5)U4 (TNF1AST4 board)	Pin1 and Pin3 S/C	-60Vd.c	15mins	-	-	EUT input current reduced to 4.03A. The F1,F3 fuse is disconnected.Test performed 3 times with same results. No hazards .NC, NT,NB.
5)U10 (TNF1OPM8 board)	Pin1 and Pin3 S/C	-60Vd.c	15mins	-	-	EUT input current reduced to 4.15A. The F2,F3 fuse is disconnected.Test performed 3 times with same results. No hazards .NC, NT,NB.
5)U1 (TNB2OBU01 board)	Pin1 and Pin3 S/C	-60Vd.c	15mins	-	-	EUT input current reduced to 4.21A. The F2,F3 fuse is disconnected.Test performed 3 times with same results. No hazards .NC, NT,NB.
5)U29 (TMB1MD40AFS board)	Pin1 and Pin3 S/C	-60Vd.c	15mins	-	-	EUT input current reduced to 3.91A. The F1,F3 fuse is disconnected.Test performed 3 times with same results. No hazards .NC, NT,NB.
6)U16 (TNF1ST2 board)	Pin1 and Pin3 S/C	-60Vd.c	15mins	-	-	EUT input current reduced to 3.94A. The F4,F5 fuse is disconnected.Test performed 3 times with same results. No hazards .NC, NT,NB.
7)U2 (TNF1TSPB board)	Pin1 and Pin3 S/C	-60Vd.c	15mins	-	-	EUT input current reduced to 7.5 A. The F2,F5 fuse is disconnected.Test performed 3 times with same results. No hazards .NC, NT,NB.
7)R185 (TNF1AUX board)	Pin1 and Pin2 S/C	-60Vd.c	15mins	-	-	EUT input current reduced to 6.3 A. The F2 fuse is disconnected.Test performed 3 times with same results. No hazards .NC, NT,NB.
7)U301 (TNW1PF4E8 board)	Pin1 and Pin3 S/C	-60Vd.c	15mins	-	-	EUT input current reduced to 7.4A. The F302 fuse is disconnected.Test performed 3 times with same results. No hazards .NC, NT,NB.

1) Openings	Blocked	-60Vd.c	114mins	-	-	When monitoring temperature of EUT reached highest, EUT was protected. The temperature reduce until thermal equilibrium. No hazards. The maximum temperature: DC/DC converter U6 on TMB1ELOM is 104.6°C, NB, NT, NC
1) Fans	Disconnected	-60Vd.c	148mins	-	-	The temperature of EUT changed periodically, no hazards, maximum temperature: DC/DC converter U1018 on TMB1SL16S is 151.8°C, NB, NT, NC
2)Openings	Blocked	-60Vd.c	173mins	-	-	When monitoring temperature of EUT reached highest, EUT was protected. The temperature reduce until thermal equilibrium. No hazards. The maximum temperature: DC/DC converter U2013 on TMB1LDCD is 102.5°C, NB, NT, NC
2) Fans	Disconnected	-60Vd.c	137mins	-	-	The temperature of EUT changed periodically, no hazards, maximum temperature: DC/DC converter U6 on TMK1TDC is 155.1°C, NB, NT, NC
3)Openings	Blocked	240 V a.c.	120mins	-	-	When monitoring temperature of EUT reached highest, EUT was protected. The temperature reduce until thermal equilibrium. No hazards. The maximum temperature: Transformer T2 core on PSU is 90.4°C, NB, NT, NC
3)Openings	Blocked	240 V DC	111mins	-	-	When monitoring temperature of EUT reached highest, EUT was protected. The temperature reduce until thermal equilibrium. No hazards. The maximum temperature: Transformer T2 core on PSU is 85.3°C, NB, NT, NC
3) Fans	Disconnected	240 V a.c.	228mins	-	-	The temperature of EUT changed periodically, no hazards, maximum temperature: Transformer T4 core on PSU is 120.3°C, NB, NT, NC
3) Fans	Disconnected	240 V DC.	150mins	-	-	The temperature of EUT changed periodically, no hazards, maximum temperature: Transformer T4 core on PSU is 121.3°C, NB, NT, NC

4)Openings	Blocked	240 V a.c.	161mins	-	-	When monitoring temperature of EUT reached highest, EUT was protected. The temperature reduce until thermal equilibrium. No hazards. The maximum temperature: Transformer T1 winding on PSU is 98.1°C, NB, NT, NC
4)Openings	Blocked	240 V DC	102mins	-	-	When monitoring temperature of EUT reached highest, EUT was protected. The temperature reduce until thermal equilibrium. No hazards. The maximum temperature: Transformer T1 winding on PSU is 102.2°C, NB, NT, NC
4) Fans	Disconnected	240 V a.c.	228mins	-	-	The temperature of EUT changed periodically, no hazards, maximum temperature: Transformer T1 winding on PSU is 149.0°C, NB, NT, NC
4) Fans	Disconnected	240 V DC.	230mins	-	-	The temperature of EUT changed periodically, no hazards, maximum temperature: Transformer T1 winding on PSU is 147.2°C, NB, NT, NC
5)Openings	Blocked	-60Vd.c	89mins	-	-	The temperature of EUT changed periodically, no hazards, maximum temperature: DC/DC converter U29 on TMB1MD40AFS is 89.4°C, NB, NT, NC
5) Fans	Disconnected	-60Vd.c	184mins	-	-	The temperature of EUT changed periodically, no hazards, maximum temperature: DC/DC converter U29 on TMB1MD40AFS is 154.9°C, NB, NT, NC
6)Openings	Blocked	-60Vd.c	87mins	-	-	The temperature of EUT changed periodically, no hazards, maximum temperature: DC/DC converter U16 on TNF1ST2 is 71°C, NB, NT, NC
6) Fans	Disconnected	-60Vd.c	271mins	-	-	The temperature of EUT changed periodically, no hazards, maximum temperature: DC/DC converter U16 on TNF1ST2 is 127.7°C, NB, NT, NC
7)Openings	Blocked	-60Vd.c	86mins	-	-	The temperature of EUT changed periodically, no hazards, maximum temperature: DC/DC converter U301 on TNW1PF4E8 is 67°C, NB, NT, NC

7) Fans	Disconnected	-60Vd.c	168mins	-	-	The temperature of EUT changed periodically, no hazards, maximum temperature: DC/DC converter U301 on TNW1PF4E8 is 139°C, NB, NT, NC

Supplementary information: tested with OSN 1800 II Pro SYBH(A)06388882
Component temperature has be calculated to max.ambient temperature.
NC- Cheesecloth remained intact
NT- Tissue paper remained intact
NB- No indication of dielectric breakdown after 60 seconds
1) Test configuration 1
2) Test configuration 2
3) Test configuration 3
4) Test configuration 4
5) Test configuration 5
6) Test configuration 6
7) Test configuration 7

C.2	**TABLE: transformers**	N/A

Loc.	Tested insulation	Working voltage peak / V (2.10.2)	Working voltage rms / V (2.10.2)	Required electric strength (5.2)	Required clearance / mm (2.10.3)	Required creepage distance / mm (2.10.4)	Required distance thr. insul. (2.10.5)

Loc.	Tested insulation	Test voltage/ V	Measured clearance / mm	Measured creepage dist./ mm	Measured distance thr. insul. / mm; number of layers

supplementary information:

C.2	**TABLE: transformers**	N/A

Transformer

Attachment No. 1

European Group differences and national differences according to EN 60950-1/ A11:2009/A1:2010/A12:2011/A2:2013

Attachment contains

Cover page:	1 page
National Differences:	18 pages
Total:	19pages

Explanation for Abbreviations:Possible Verdicts: **P** = Pass, **F**= Fail, **N/A**= Not Applicable

Remarks:

Throughout this report, a point is used as the decimal separator.

ATTACHMENT TO TEST REPORT IEC 60950-1
EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES
Information technology equipment – Safety –Part 1: General requirements

Differences according to.....: EN 60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013

Attachment Form No.....: EU_GD_IEC60950_1F
Attachment Originator .....: SGS Fimko Ltd
Master Attachment.....: Date 2014-02

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EN 60950-1:2006/A11:2009/A1:2010/A12:2011/A2:2013 – CENELEC COMMON MODIFICATIONS

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
Contents (A2:2013)	Add the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZD (informative) IEC and CENELEC code designations for flexible cords		P
General	Delete all the "country" notes in the reference document (IEC 60950-1:2005) according to the following list: 1.4.8 Note 2; 1.5.1 Note 2 & 3; 1.5.7.1 Note 1.5.8 Note 2; 1.5.9.4 Note; 1.7.2.1 Note 4, 5 & 6 2.2.3 Note; 2.2.4 Note; 2.3.2 Note 2.3.2.1 Note 2; 2.3.4 Note 2; 2.6.3.3 Note 2 & 3 2.7.1 Note; 2.10.3.2 Note 2; 2.10.5.13 Note 3 3.2.1.1 Note; 3.2.4 Note3.; 2.5.1 Note 2 4.3.6 Note 1 & 2; 4.7 Note 4; 4.7.2.2 Note 4.7.3.1 Note 2; 5.1.7.1 Note 3 & 4; 5.3.7 Note 1 6 Note 2 & 5; 6.1.2.1 Note 2; 6.1.2.2 Note 6.2.2 Note; 6.2.2.1 Note 2; 6.2.2.2 Note 7.1 Note 3; 7.2 Note; 7.3 Note 1 & 2 G.2.1 Note 2; Annex H Note 2		P
General (A1:2010)	Delete all the "country" notes in the reference document (IEC 60950-1:2005/A1:2010) according to the following list: 1.5.7.1 Note; 6.1.2.1 Note 2 6.2.2.1 Note 2; EE.3 Note		P
General (A2:2013)	Delete all the "country" notes in the reference document (IEC 60950-1:2005/A2:2013) according to the following list: 2.7.1 Note *; 2.10.3.1 Note 2 6.2.2. Note * Note of secretary: Text of Common Modification remains unchanged.		P
1.1.1 (A1:2010)	**Replace** the text of NOTE 3 by the following. NOTE 3 The requirements of EN 60065 may also be used to meet safety requirements for multimedia equipment. See IEC Guide 112, Guide on the safety of multimedia equipment. For television sets EN 60065 applies.		P

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
1.3.Z1	Add the following subclause: 1.3.Z1 Exposure to excessive sound pressure The apparatus shall be so designed and constructed as to present no danger when used for its intended purpose, either in normal operating conditions or under fault conditions, particularly providing protection against exposure to excessive sound pressures from headphones or earphones. NOTE Z1 A new method of measurement is described in EN 50332-1, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 1: General method for “one package equipment”, and in EN 50332-2, Sound system equipment: Headphones and earphones associated with portable audio equipment - Maximum sound pressure level measurement methodology and limit considerations - Part 2: Guidelines to associate sets with headphones coming from different manufacturers.		N/A
(A12:2011)	In EN 60950-1:2006/A12:2011 Delete the addition of 1.3.Z1 / EN 60950-1:2006 Delete the definition 1.2.3.Z1 / EN 60950-1:2006 /A1:2010		N/A
1.5.1 (Added info*)	Add the following NOTE: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2002/95/EC. New Directive 2011/65/11 *		P
1.7.2.1 (A1:2010)	In addition, for a PORTABLE SOUND SYSTEM, the instructions shall include a warning that excessive sound pressure from earphones and headphones can cause hearing loss.		N/A
1.7.2.1 (A12.2011)	In EN 60950-1:2006/A12:2011 Delete NOTE Z1 and the addition for Portable Sound System. Add the following clause and annex to the existing standard and amendments.		N/A
	Zx Protection against excessive sound pressure from personal music players		N/A

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	Zx.1 General This sub-clause specifies requirements for protection against excessive sound pressure from personal music players that are closely coupled to the ear. It also specifies requirements for earphones and headphones intended for use with personal music players. A personal music player is a portable equipment for personal use, that: – is designed to allow the user to listen to recorded or broadcast sound or video; and – primarily uses headphones or earphones that can be worn in or on or around the ears; and – allows the user to walk around while in use. NOTE 1 Examples are hand-held or body-worn portable CD players, MP3 audio players, mobile phones with MP3 type features, PDA's or similar equipment. A personal music player and earphones or headphones intended to be used with personal music players shall comply with the requirements of this sub-clause. The requirements in this sub-clause are valid for music or video mode only. The requirements do not apply: – while the personal music player is connected to an external amplifier; or – while the headphones or earphones are not used. NOTE 2 An external amplifier is an amplifier which is not part of the personal music player or the listening device, but which is intended to play the music as a standalone music player. The requirements do not apply to: – hearing aid equipment and professional equipment; NOTE 3 Professional equipment is equipment sold through special sales channels. All products sold through normal electronics stores are considered not to be professional equipment.		N/A
	– analogue personal music players (personal music players without any kind of digital processing of the sound signal) that are brought to the market before the end of 2015. NOTE 4 This exemption has been allowed because this technology is falling out of use and it is expected that within a few years it will no longer exist. This exemption will not be extended to other technologies. For equipment which is clearly designed or intended for use by young children, the limits of EN 71-1 apply.		N/A

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	Zx.2 Equipment requirements No safety provision is required for equipment that complies with the following: – equipment provided as a package (personal music player with its listening device), where the acoustic output $L_{Aeq,T}$ is ≤ 85 dBA measured while playing the fixed “programme simulation noise” as described in EN 50332-1; and – a personal music player provided with an analogue electrical output socket for a listening device, where the electrical output is ≤ 27 mV measured as described in EN 50332-2, while playing the fixed “programme simulation noise” as described in EN 50332-1. NOTE 1 Wherever the term acoustic output is used in this clause, the 30 s A-weighted equivalent sound pressure level $L_{Aeq,T}$ is meant. See also Zx.5 and Annex Zx. All other equipment shall: a) protect the user from unintentional acoustic outputs exceeding those mentioned above; and b) have a standard acoustic output level not exceeding those mentioned above, and automatically return to an output level not exceeding those mentioned above when the power is switched off; and		N/A

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	c) provide a means to actively inform the user of the increased sound pressure when the equipment is operated with an acoustic output exceeding those mentioned above. Any means used shall be acknowledged by the user before activating a mode of operation which allows for an acoustic output exceeding those mentioned above. The acknowledgement does not need to be repeated more than once every 20 h of cumulative listening time; and NOTE 2 Examples of means include visual or audible signals. Action from the user is always required. NOTE 3 The 20 h listening time is the accumulative listening time, independent how often and how long the personal music player has been switched off. d) have a warning as specified in Zx.3; and e) not exceed the following: 1) equipment provided as a package (player with Its listening device), the acoustic output shall be ≤ 100 dBA measured while playing the fixed “programme simulation noise” described in EN 50332-1; and 2) a personal music player provided with an analogue electrical output socket for a listening device, the electrical output shall be ≤ 150 mV measured as described in EN 50332-2, while playing the fixed “programme simulation noise” described in EN 50332-1. For music where the average sound pressure (long term $L_{Aeq,T}$) measured over the duration of the song is lower than the average produced by the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA. In this case T becomes the duration of the song. NOTE 4 Classical music typically has an average sound pressure (long term $L_{Aeq,T}$) which is much lower than the average programme simulation noise. Therefore, if the player is capable to analyse the song and compare it with the programme simulation noise, the warning does not need to be given as long as the average sound pressure of the song is below the basic limit of 85 dBA. For example, if the player is set with the programme simulation noise to 85 dBA, but the average music level of the song is only 65 dBA, there is no need to give a warning or ask an acknowledgement as long as the average sound level of the song is not above the basic limit of 85 dBA.		N/A

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	Zx.3 Warning The warning shall be placed on the equipment, or on the packaging, or in the instruction manual and shall consist of the following: – the symbol of Figure 1 with a minimum height of 5 mm; and – the following wording, or similar: "To prevent possible hearing damage, do not listen at high volume levels for long periods." **Figure 1 – Warning label (IEC 60417-6044)** Alternatively, the entire warning may be given through the equipment display during use, when the user is asked to acknowledge activation of the higher level.		N/A
	Zx.4 Requirements for listening devices (headphones and earphones)		N/A
	Zx.4.1 Wired listening devices with analogue input With 94 dBA sound pressure output $L_{Aeq,T}$, the input voltage of the fixed "programme simulation noise" described in EN 50332-2 shall be ≥ 75 mV. This requirement is applicable in any mode where the headphones can operate (active or passive), including any available setting (for example built-in volume level control). NOTE The values of 94 dBA – 75 mV correspond with 85dBA – 27 mV and 100 dBA – 150 mV.		N/A
	Zx.4.2 Wired listening devices with digital input With any playing device playing the fixed "programme simulation noise" described in EN 50332-1 (and respecting the digital interface standards, where a digital interface standard exists that specifies the equivalent acoustic level), the acoustic output $L_{Aeq,T}$ of the listening device shall be ≤ 100 dBA. This requirement is applicable in any mode where the headphones can operate, including any available setting (for example built-in volume level control, additional sound feature like equalization, etc.). NOTE An example of a wired listening device with digital input is a USB headphone.		N/A

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	Zx.4.3 Wireless listening devices In wireless mode: – with any playing and transmitting device playing the fixed programme simulation noise described in EN 50332-1; and – respecting the wireless transmission standards, where an air interface standard exists that specifies the equivalent acoustic level; and – with volume and sound settings in the listening device (for example built-in volume level control, additional sound feature like equalization, etc.) set to the combination of positions that maximize the measured acoustic output for the abovementioned programme simulation noise, the acoustic output $L_{Aeq,T}$ of the listening device shall be ≤ 100 dBA. NOTE An example of a wireless listening device is a Bluetooth headphone.		N/A
	Zx.5 Measurement methods Measurements shall be made in accordance with EN 50332-1 or EN 50332-2 as applicable. Unless stated otherwise, the time interval T shall be 30 s. NOTE Test method for wireless equipment provided without listening device should be defined.		N/A
2.7.1	Replace the subclause as follows: Basic requirements To protect against excessive current, short-circuits and earth faults in PRIMARY CIRCUITS, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of 5.3 shall be included as parts of the equipment; b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation;		N/A

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	c) it is permitted for PLUGGABLE EQUIPMENT TYPE B or PERMANENTLY CONNECTED EQUIPMENT, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions. If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for PLUGGABLE EQUIPMENT TYPE A the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.		
2.7.2	This subclause has been declared 'void'.		N/A
3.2.3	Delete the NOTE in Table 3A, and delete also in this table the conduit sizes in parentheses.		N/A
3.2.5.1 (A2:2013)	Replace "60245 IEC 53" by "H05 RR-F"; "60227 IEC 52" by "H03 VV-F or H03 VVH2-F"; "60227 IEC 53" by "H05 VV-F or H05 VVH2-F2". In Table 3B, replace the first four lines by the following: Up to and including 6 | 0,75 [a] | Over 6 up to and including 10| (0,75) [b] 1,0 | Over 10 up to and including 16| (1,0) [c] 1,5 | In the conditions applicable to Table 3B delete the words "in some countries" in condition [a]. In NOTE 1, applicable to Table 3B, delete the second sentence. NOTE Z1 The harmonised code designations corresponding to the IEC cord types are given in Annex ZD		N/A
3.3.4	In Table 3D, delete the fourth line: conductor sizes for 10 to 13 A, and replace with the following: Over 10 up to and including 16 | 1,5 to 2,5 | 1,5 to 4 | Delete the fifth line: conductor sizes for 13 to 16 A		N/A
4.3.13.6 (A1:2010)	Replace the existing NOTE by the following: NOTE Z1 Attention is drawn to: 1999/519/EC: Council Recommendation on the limitation of exposure of the general public to electromagnetic fields 0 Hz to 300 GHz, and 2006/25/EC: Directive on the minimum health and safety requirements regarding the exposure of workers to risks arising from physical agents (artifical optical radiation).		N/A
	Standards taking into account mentioned Recommendation and Directive which demonstrate compliance with the applicable EU Directive are indicated in the OJEC.		N/A

IEC 60950-1, GROUP DIFFERENCES (CENELEC common modifications EN)			
Clause	Requirement + Test	Result - Remark	Verdict
Annex H	Replace the last paragraph of this annex by: At any point 10 cm from the surface of the OPERATOR ACCESS AREA, the dose rate shall not exceed 1 µSv/h (0,1 mR/h) (see NOTE). Account is taken of the background level. Replace the notes as follows: NOTE These values appear in Directive 96/29/Euratom. Delete NOTE 2.		N/A
Bibliography	Additional EN standards.		—

ZA	NORMATIVE REFERENCES TO INTERNATIONAL PUBLICATIONS WITH THEIR CORRESPONDING EUROPEAN PUBLICATIONS	—

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
1.2.4.1	In **Denmark**, certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.		N/A
1.2.13.14 (A11:2009)	In **Norway** and **Sweden**, for requirements see 1.7.2.1 and 7.3 of this annex.		N/A
1.5.7.1 (A11:2009)	In **Finland, Norway** and **Sweden**, resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2.		N/A
1.5.8	In **Norway**, due to the IT power system used (see annex V, Figure V.7), capacitors are required to be rated for the applicable line-to-line voltage (230 V).		N/A
1.5.9.4	In **Finland**, **Norway** and **Sweden**, the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.		N/A

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.2.1	In **Finland**, **Norway** and **Sweden**, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text in the applicable countries shall be as follows: In Finland: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan" In Norway: “Apparatet må tilkoples jordet stikkontakt” In Sweden: “Apparaten skall anslutas till jordat uttag”		N/A
1.7.2.1 (A11:2009)	In **Norway** and **Sweden**, the screen of the cable distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation need to be isolated from the screen of a cable distribution system. It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by e.g. a retailer. The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in: “Equipment connected to the protective earthing of the building installation through the mains connection or through other equipment with a connection to protective earthing – and to a cable distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a cable distribution system has therefore to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11).”		

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	NOTE In Norway, due to regulation for installations of cable distribution systems, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min. Translation to Norwegian (the Swedish text will also be accepted in Norway): “Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel- TV nettet.” Translation to Swedish: ”Utrustning som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät galvanisk isolator finnas mellan utrustningen och kabel-TV nätet.”		N/A
1.7.2.1 (A2:2013)	In **Denmark**, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text in **Denmark** shall be as follows: In **Denmark**: “Apparatets stikprop skal tilsluttes en stikkontakt med jord, som giver forbindelse til stikproppens jord.”		N/A
1.7.5 1.7.5 (A11:2009)	In **Denmark**, socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a. For **CLASS II EQUIPMENT** the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.		N/A

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
1.7.5 (A2:2013)	In **Denmark**, socket-outlets for providing power to other equipment shall be in accordance with the DS 60884-2-D1:2011. For class I equipment the following Standard Sheets are applicable: DK 1-3a, DK 1-1c, DK 1-1d, DK 1-5a or DK 1-7a, with the exception for STATIONARY EQUIPMENT where the socket-outlets shall be in accordance with Standard Sheet DK 1-1b, DK 1-1c, DK 1-1d or DK 1-5a. Socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance with DS 60884-2-D1 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with by DS 60884-2-D1 Standard Sheet DKA 1-3a or DKA 1-3b. Justification the Heavy Current Regulations, 6c		N/A
2.2.4	In **Norway**, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.		N/A
2.3.2	In **Finland**, **Norway** and **Sweden** there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.		N/A
2.3.4	In **Norway**, for requirements see 1.7.2.1, 6.1.2.1 and 6.1.2.2 of this annex.		N/A
2.6.3.3	In the **United Kingdom**, the current rating of the circuit shall be taken as 13 A, not 16 A.		N/A
2.7.1	In the **United Kingdom**, to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met.		N/A
2.10.5.13	In **Finland**, **Norway** and **Sweden**, there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.		N/A
3.2.1.1	In **Switzerland**, supply cords of equipment having a RATED CURRENT not exceeding 10 A shall be provided with a plug complying with SEV 1011 or IEC 60884-1 and one of the following dimension sheets: SEV 6532-2.1991 Plug Type 15 3P+N+PE 250/400 V, 10 A		N/A

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
	SEV 6533-2.1991 Plug Type 11 L+N 250 V, 10 A SEV 6534-2.1991 Plug Type 12 L+N+PE 250 V, 10 A In general, EN 60309 applies for plugs for currents exceeding 10 A. However, a 16 A plug and socket-outlet system is being introduced in Switzerland, the plugs of which are according to the following dimension sheets, published in February 1998: SEV 5932-2.1998: Plug Type 25 , 3L+N+PE 230/400 V, 16 A SEV 5933-2.1998:Plug Type 21, L+N, 250 V, 16A SEV 5934-2.1998: Plug Type 23, L+N+PE 250 V, 16 A		
3.2.1.1	In **Denmark**, supply cords of single-phase equipment having a rated current not exceeding13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.		N/A
3.2.1.1 (A2:2013)	In **Denmark**, supply cords of single-phase equipment having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2. Justification the Heavy Current Regulations, 6c		N/A

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
3.2.1.1	In **Spain**, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994. Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994. If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.		N/A
3.2.1.1	In the **United Kingdom**, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations. NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N/A
3.2.1.1	In **Ireland**, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 - National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997.		N/A
3.2.4	In **Switzerland**, for requirements see 3.2.1.1 of this annex.		N/A
3.2.5.1	In the **United Kingdom**, a power supply cord with conductor of 1,25 mm2 is allowed for equipment with a rated current over 10 A and up to and including 13 A.		N/A
3.3.4	In the **United Kingdom**, the range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is: • 1,25 mm^2 to 1,5 mm^2 nominal cross-sectional area.		N/A

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
4.3.6	In the **United Kingdom**, the torque test is performed using a socket outlet complying with BS 1363 part 1:1995, including Amendment 1:1997 and Amendment 2:2003 and the plug part of DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		N/A
4.3.6	In **Ireland**, DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 - National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.		N/A
5.1.7.1	In **Finland**, **Norway** and **Sweden** TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment: • STATIONARY PLUGGABLE EQUIPMENT TYPE A that is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and is provided with instructions for the installation of that conductor by a SERVICE PERSON; • STATIONARY PLUGGABLE EQUIPMENT TYPE B; • STATIONARY PERMANENTLY CONNECTED EQUIPMENT.		N/A

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
6.1.2.1 (A1:2010)	In **Finland**, **Norway** and **Sweden**, add the following text between the first and second paragraph of the compliance clause: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. Alternatively for components, there is no distance through insulation requirements for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition - passes the tests and inspection criteria of 2.10.11 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.10 shall be performed using 1,5 kV), and - is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV.		N/A
	It is permitted to bridge this insulation with an optocoupler complying with 2.10.5.4 b). It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions: - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 60384-14; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.		N/A

ZB ANNEX (normative) SPECIAL NATIONAL CONDITIONS (EN)			
Clause	Requirement + Test	Result - Remark	Verdict
6.1.2.2	In **Finland**, **Norway** and **Sweden**, the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.		N/A
7.2	In **Finland**, **Norway** and **Sweden**, for requirements see 6.1.2.1 and 6.1.2.2 of this annex. The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.		N/A
7.3	In **Norway** and **Sweden**, for requirements see 1.2.13.14 and 1.7.2.1 of this annex.		N/A
7.3	In **Norway**, for installation conditions see EN 60728-11:2005.		N/A

Note: Before placing the products in the different countries, the manufacturer must ensure that:

1. Operating Instructions, Ratings Labels and Warnings Labels written in an Accepted or Official Language of the county in question.
2. The equipment complies with the National Standards and/or Electrical Codes of the country in question.

Attachment No. 2

National and Group Differences for IEC 60950-1 2nd Ed. +A1:2009 + A2:2013 as per CB Bulletin

Countries Included: See overview on following page

Attachment contains

Cover page:	1 page
National and Group Differences:	67 pages
Total:	68 pages

Explanation for Abbreviations:
Possible Verdicts: **P** = Pass, **F**= Fail, **N/A** = Not Applicable
Remarks:
Throughout this report, a point is used as the decimal separator.

National Differences covered by this report					
Country	CENELEC Group differ. (see separate attachment)	National differ.	Base standard	National standard	Tested
AT Austria	Yes	-	IEC 60950-1 ed2 + A1+ A2	EN 60950-1/A2:2013	Yes
AU Australia	-	Yes	IEC 60950-1, ed. 2.2 (2013)	AS/NZS 60950.1:2015	Yes
Argentina	-	-	IEC 60950-1 ed2+ A1	-	No
Belarus	-	-	IEC 60950-1 ed2 + A1	-	Yes
BE Belgium	Yes	-	IEC 60950-1 ed2 + A1+ A2	EN 60950-1/A2:2013	Yes
Brazil	-	-	IEC 60950-1 ed2 + A1	-	Yes
CA Canada	-	Yes	IEC 60950-1 ed2 + A1	CAN/CSA-C22.2 No. 60950-1/A1:2011/A2:2014	Yes
CH Switzerland	Yes	-	IEC 60950-1 ed2+ A1	SN EN 60950-1/A1:2010	Yes
CN China	-	Yes	IEC 60950-1(ed.2)	GB4943.1-2011	Yes
CZ Czech Republic	Yes	-	IEC 60950-1 ed2 + A1	EN 60950-1/A1:2010	Yes
DE Germany	Yes	Yes	IEC 60950-1 ed2 + A1+ A2	EN 60950-1/A2:2013; VDE 0805-1:2011-01	Yes
DK Denmark	Yes	Yes	IEC 60950-1 ed2 + A1+A2	DS/EN 60950-1/A2:2013	Yes
ES Spain	Yes	Yes	IEC 60950-1 ed2	UNE EN 60950-1	Yes
FI Finland	Yes	Yes	IEC 60950-1 ed2 + A1	EN 60950-1/A1:2010	Yes
FR France	Yes	-	IEC 60950-1 ed2 + A1+ A2	EN 60950-1/A2:2013	Yes
GB United Kingdom	Yes	Yes	IEC 60950-1 ed2 + A1+ A2	BS EN 60950-1/A2:2013	Yes
HU Hungary	Yes	-	IEC 60950-1 ed2 + A1+ A2	EN 60950-1/A1:2010	Yes
IE Ireland	Yes	Yes	IEC 60950-1 ed2	EN 60950-1	Yes
IL Israel	-	Yes	IEC 60950-1 ed2 + A1	SI 60950-1:2012	Yes
IN India	-	-	IEC 60950-1 ed2 + A1	-	Yes
IT Italy	Yes	-	IEC 60950-1 ed2	EN 60950-1/A2:2013	Yes

National Differences covered by this report					
Country	CENELEC Group differ. (see separate attachment)	National differ.	Base standard	National standard	Tested
			+ A1+A2		
JP Japan	-	Yes	IEC 60950-1 ed1	J60950-1(H26); J3000 (H25)	Yes
KR Korea	-	Yes	IEC 60950-1 ed2 + A1	K 60950-1	Yes
MY Malaysia	-	-	IEC 60950-1 ed2 + A1	-	Yes
NO Norway	Yes	-	IEC 60950-1 ed2 + A1+A2	EN 60950-1/A2:2013	Yes
NL Netherlands	Yes	-	IEC 60950-1 ed2 + A1+A2	EN 60950-1/A2:2013	Yes
PL Poland	Yes	-	IEC 60950-1 ed2 + A1	EN 60950-1/A1:2010	Yes
Russian Republic	-	-	IEC 60950-1 ed1	-	Yes
Saudi Arabia	-	-	IEC 60950-1 ed2 + A1	-	Yes
SE Sweden	Yes	Yes	IEC 60950-1 ed2 + A1+A2	SS-EN60950-1/A2:2013	Yes
SG Singapore	-	-	IEC 60950-1 ed2 + A1+A2	-	Yes
SI Slovenia	Yes	-	IEC 60950-1 ed2 + A1	SIST EN 60950/A1:2010	Yes
Slovakia	-	-	IEC 60950-1 ed2 + A1+A2	-	No
SERBIA	-	-	IEC 60950-1 ed2 + A1+A2	-	Yes
UA Ukraine	-	Yes	IEC 60950 ed3	DSTU 4113-2001	Yes
US United States of America	-	Yes	IEC 60950-1 ed2 + A1+A2	UL 60950-1 Am.1; Am.2	Yes

General remarks:

The test results presented in this report relate only to the object tested.

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

Throughout this report a point is used as the decimal separator.

See attachment 1 for European Group Differences and National Differences.

Note: Before placing the products in the different countries, the manufacturer must ensure that:

1. Operating Instructions, Ratings Labels and Warnings Labels written in an Accepted or Official Language of the county in question.
2. The equipment complies with the National Standards and/or Electrical Codes of the country in question.
3. Mains plugs and internal wirings should be assessed to the national standard. ***(***(if necessary***)***

Possible test case verdicts:	
- test case does not apply to the test object ..... :	N/A
- test object does meet the requirement ..... :	P (Pass)
- test object does not meet the requirement ..... :	F (Fail)

AU Australia			**AU**
	Annex ZZ **(normative)** **Variations to IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013 for application** **in Australia and New Zealand**		—
	ZZ1 Introduction This Annex sets out variations between this Standard and IEC 60950-1:2001. These variations indicate national variations for purposes of the IECEE CB Scheme and will be published in the IECEE CB Bulletin. These variations are indicated within the body of the Standard. ZZ.2 Variations The variations are as follows:		—
1.2	Insert the following between 'person, service' and 'range, rated frequency': POTENTIAL IGNITION SOURCE 1.2.12		N/A
1.2.12.201	Insert a new Clause 1.2.12.201 after Clause 1.2.12.15 as follows: **1.2.12.201** **POTENTIAL IGNITION SOURCE** Possible fault which can start a fire if the open-circuit voltage measured across an interruption or faulty contact exceeds a value of 50 V (peak) a.c. or d.c. and the product of the peak value of this voltage and the measured r.m.s. current under normal operating conditions exceeds 15 VA. Such a faulty contact or interruption in an electrical connection includes those which may occur in CONDUCTIVE PATTERNS on PRINTED BOARDS. NOTE 1 An electronic protection circuit may be used to prevent such a fault from becoming a POTENTIAL IGNITION SOURCE. NOTE 2 This definition is from AS/NZS 60065:2012, Clause 2.8.11.		N/A
1.5.1	1. Add the following to the end of the first paragraph: 'or the relevant Australian/New Zealand Standard'. 2. In the Note, add the following after the word 'standard': 'or an Australian/New Zealand Standard'. 3. Second paragraph, delete the words 'without further evaluation'.		N/A
1.5.2.	1. First paragraph, insert the following text after the word 'standard': or an Australian/New Zealand Standard 2. First paragraph, second dash item, second line, insert the following text after the word 'standard': or an Australian/New Zealand Standard 3. First paragraph, second dash item, last line, insert the following text after the word 'standard': or an Australian/New Zealand Standard.		N/A

<table>
<tr><td colspan="3">AU Australia</td><td>AU</td></tr>
<tr><td>1.7.1.3</td><td>Delete existing text and replace with the following:
Graphical symbols placed on the equipment as a requirement of this standard, shall be in accordance with IEC 60417 or ISO 3864-2 or ISO 7000, if available. In the absence of suitable symbols, the manufacturer may design specific graphical symbols.
Symbols as required by this standard placed on the equipment shall be explained in the user manual.</td><td></td><td>N/A</td></tr>
<tr><td>2.9.2</td><td>Second paragraph, delete the word ‘designated’.</td><td></td><td>N/A</td></tr>
<tr><td>Table 3B</td><td>1. Delete the first four rows and replace with the following:
<table>
<tr><td>Over 0.2</td><td>up to and including</td><td>3</td><td></td><td>0,5 [a]</td><td>18</td><td>[0,8]</td></tr>
<tr><td>Over 3</td><td>up to and including</td><td>7.5</td><td></td><td>0,75</td><td>16</td><td>[1,3]</td></tr>
<tr><td>Over 7.5</td><td>up to and including</td><td>10</td><td>(0,75) [b]</td><td>1,00</td><td>16</td><td>[1,3]</td></tr>
<tr><td>Over 10</td><td>up to and including</td><td>16</td><td>1,0) [c]</td><td>1,5</td><td>14</td><td>[2]</td></tr>
</table>
2. Delete NOTE 1 and renumber existing NOTE 2 as ‘NOTE’.
3. Delete Footnote [a] and replace with the following:
[a] This nominal cross-sectional area is only allowed for Class II appliances if the length of the power supply cord, measured between the point where the cord, or cord guard, enters the appliance, and the entry to the plug does not exceed 2 m (0.5 mm^2 three-core supply flexible cords are not permitted; see AS/NZS 3191).</td><td></td><td>N/A</td></tr>
<tr><td>4.1.201</td><td>Insert a new Clause 4.1.201 after Clause 4.1 as follows:
4.1.201 Display devices used for television purposes
Display devices which may be used for television purposes, with a mass of 7 kg or more, shall comply with the requirements for stability and mechanical hazards, including the additional stability requirements for television receivers, specified in AS/NZS 60065.</td><td></td><td>N/A</td></tr>
<tr><td>4.3.6</td><td>Delete the third paragraph and replace with the following:
Equipment with a plug portion, suitable for insertion into a 10 A 3-pin flatpin socket-outlet complying with AS/NZS 3112 shall comply with the requirements in AS/NZS 3112 for equipment with integral pins for insertion into socket-outlets.</td><td></td><td></td></tr>
<tr><td>4.3.8</td><td>Eighth paragraph, insert the following new note after the first dash item:
NOTE 6.201 In cases where the voltage source is provided by power from an unassociated power source, consideration should be given to the effects of possible single fault conditions in the unassociated equipment. If the power source is unknown then it should be assumed that the maximum limit of SELV may be applied to the source input under assumed single fault conditions in the source when assessing the charging circuit in the equipment under test.</td><td></td><td>N/A</td></tr>
</table>

AU Australia			**AU**
4.3.8.201	After Clause 4.3.8, add the following new clause as follows: **4.3.8.201 Products containing coin/button cell batteries and batteries designated R1** The requirements of AS/NZS 60065:2012 Amendment 1:2015, Clause 14.10.201 apply for this Clause.		N/A
4.3.13.5	Clause 4.3.13.5 and replace with the following: 1.Add the following after each reference to 'IEC 60825-1' : or 'AS/NZS 60825.1' 2. Add the following after 'IEC 60825-2' in line two of the first paragraph: 'or AS/NZS 60825.2'		N/A
4.7	Add the following new paragraph to the end of the clause: 'For alternate tests refer to Clause 4.7.201.'		N/A
4.7.201	Insert a new Clause 4.7.201 after Clause 4.7.3.6 as follows: **4.7.201 Resistance to fire – Alternative tests**		N/A

AU Australia			AU
4.7.201.1	**4.7.201.1 General** Parts of non-metallic material shall be resistant to ignition and spread of fire. This requirement does not apply to decorative trims, knobs and other parts unlikely to be ignited or to propagate flames from inside the apparatus, or the following: (a) Components that are contained in an enclosure having a flammability category of V-0 according to AS/NZS 60695.11.10 and having openings only for the connecting wires filling the openings completely, and for ventilation not exceeding 1mm in width regardless of length. (b) The following parts which would contribute negligible fuel to a fire: - small mechanical parts, the mass of which does not exceed 4g, such as mounting parts, gears, cams, belts and bearings; - small electrical components, such as capacitors with a volume not exceeding 1,750 mm^3, integrated circuits, transistors and optocoupler packages, if these components are mounted on material of flammability category V-1, or better, according to AS/NZS 60695.11.10. NOTE In considering how to minimize propagation of fire and what 'small parts' are, account should be taken of the cumulative effect of small parts adjacent to each other for the possible effect of propagating the fire from one part to another. Compliance shall be checked by the tests of 4.7.201.2, 4.7.201.3, 4.7.201.4 and 4.7.201.5. For the base material of printed boards, compliance shall be checked by the test of 4.7.201.5. The tests shall be carried out on parts of non-metallic material which have been removed from the apparatus. When the glow-wire test is carried out, the parts shall be placed in the same orientation as they would be in normal use. These tests are not carried out on internal wiring.		N/A
4.7.201.2	**4.7.201.2 Testing of non-metallic materials** Parts of non-metallic material shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 550 °C. Parts for which the glow-wire test cannot be carried out, such as those made of soft or foamy material, shall meet the requirements specified in ISO 9772 for category FH-3 material. The glow-wire test shall be not carried out on parts of material classified at least FH-3 according to ISO 9772 provided that the sample tested was not thicker than the relevant part.		N/A

AU Australia **AU**

4.7.201.3

4.7.201.3 Testing of insulating materials

Parts of insulating material supporting POTENTIAL IGNITION SOURCES shall be subject to the glow-wire test of AS/NZS 60695.2.11 which shall be carried out at 750 °C.

The test shall be also carried out on other parts of insulating material which are within a distance of 3 mm of the connection.

NOTE Contacts in components such as switch contacts are considered to be connections.

For parts which withstand the glow-wire test but produce a flame, other parts above the connection within the envelope of a vertical cylinder having a diameter of 20 mm and a height of 50 mm shall be subjected to the needle-flame test. However, parts shielded by a barrier which meets the needle-flame test shall not be tested.

The needle-flame test shall be made in accordance with AS/NZS 60695.11.5 with the following modifications:

Clause of AS/NZS 60695.11.5	Change
9 Test procedure	
9.2 Application of needleflame	Replace the first paragraph with: The specimen shall be arranged so that the flame can be applied to a vertical or horizontal edge as shown in the examples of figure 1. If possible the flame shall be applied at least 10 mm from a corner Replace the second paragraph with: The duration of application of the test flame shall be 30 s ±1 s.
9.3 Number of test specimens	Replace with: The test shall be made on one specimen. If the specimen does not withstand the test, the test may be repeated on two further specimens, both of which shall withstand the test.
11 Evaluation of test results	Replace with: The duration of burning (t_b) shall not exceed 30 s. However, for printed circuit boards, it shall not exceed 15 s.

N/A

AU Australia			AU
	The needle-flame test shall not be carried out on parts of material classified as V-0 or V-1 according to AS/NZS 60695.11.10, provided that the sample tested was not thicker than the relevant part.		N/A
4.7.201.4	**4.7.201.4 Testing in the event of non-extinguishing material** If parts, other than enclosures, do not withstand the glow wire tests of 4.7.201.3, by failure to extinguish within 30 s after the removal of the glow-wire tip, the needle-flame test detailed in 4.7.201.3 shall be made on all parts of non-metallic material which are within a distance of 50 mm or which are likely to be impinged upon by flame during the tests of 4.7.201.3. Parts shielded by a separate barrier which meets the needle-flame test need not be tested. NOTE 1 - If the enclosure does not withstand the glow-wire test the equipment is considered to have failed to meet the requirements of Clause 4.7.201 without the need for consequential testing. NOTE 2 - If other parts do not withstand the glow-wire test due to ignition of the tissue paper and if this indicates that burning or glowing particles can fall onto an external surface underneath the equipment, the equipment is considered to have failed to meet the requirements of Clause 4.7.201 without the need for consequential testing. NOTE 3 - Parts likely to be impinged upon by the flame are considered to be those within the envelope of a vertical cylinder having a radius of 10 mm and a height equal to the height of the flame, positioned above the point of the material supporting, in contact with, or in close proximity to, connections.		N/A

AU Australia			AU
4.7.201.5	**4.7.201.5 Testing of printed boards** The base material of printed boards shall be subjected to the needle-flame test of Clause 4.7.201.3. The flame shall be applied to the edge of the board where the heat sink effect is lowest when the board is positioned as in normal use. The flame shall not be applied to an edge, consisting of broken perforations, unless the edge is less than 3 mm from a POTENTIAL IGNITION SOURCE. The test is not carried out if the — - Printed board does not carry any POTENTIAL IGNITION SOURCE; - Base material of printed boards, on which the available apparent power at a connection exceeds 15 VA operating at a voltage exceeding 50 V and equal or less than 400 V (peak) a.c. or d.c. under normal operating conditions, is of flammability category V-1 or better according to AS/NZS 60695.11.10, or the printed boards are protected by an enclosure meeting the flammability category V-0 according to AS/NZS 60695.11.10, or made of metal, having openings only for connecting wires which fill the openings completely; or - Base material of printed boards, on which the available apparatus power at a connection exceeds 15 VA operating at a voltage exceeding 400 V (peak) a.c. or d.c. under normal operating conditions, and base material of printed boards supporting spark gaps which provides protection against overvoltages, is of flammability category V-0 according to AS/NZS 60695.11.10 or the printed boards are contained in a metal enclosure, having openings only for connecting wires which fill the openings completely. Compliance shall be determined using the smallest thickness of the material. NOTE Available apparent power is the maximum apparent power which can be drawn from the supplying circuit through a resistive load whose value is chosen to maximise the apparent power for more than 2 min when the circuit supplied is disconnected.		N/A
6.2.2	For Australia only, delete the first paragraph and Note, and replace with the following: In Australia only, compliance with 6.2.2 shall be checked by the tests of both 6.2.2.1 and 6.2.2.2.		P
6.2.2.1	For Australia only, delete the first paragraph including the Notes, and replace with the following: *In Australia only, the electrical separation is subjected to 10 impulses of alternating polarity, using the impulse test generator reference 1 of Table N.1. The interval between successive impulses is 60 s and the initial voltage, Uc, is:* *(i) for 6.2.1 a): 7.0 kV for hand-held telephones and for headsets and 2.5 kV for other equipment; and* *(ii) for 6.2.1 b) and 6.2.1 c): 1.5 kV.* NOTE 201 The 7 kV impulse simulates lightning surges on typical rural and semi-rural network lines. NOTE 202 The value of 2.5 kV for 6.2.1 a) was chosen to ensure the adequacy of the insulation concerned and does not necessarily simulate likely overvoltages.		N/A

AU Australia			**AU**
6.2.2.2	For Australia only, delete the second paragraph including the Note, and replace with the following: *In Australia only, the a.c. test voltage is:* *(i) for 6.2.1 a): 3 kV; and* *(ii) for 6.2.1 b) and 6.2.1 c): 1.5 kV.* NOTE 201 Where there are capacitors across the insulation under test, it is recommended that d.c. test voltages are used. NOTE 202 The 3 kV and 1.5 kV values have been determined considering the low frequency induced voltages from the power supply distribution system.		N/A
7.3	Add the following before the first paragraph: Equipment providing functions that fall only within the scope of AS/NZS 60065 and that incorporate a PSTN interface, are not required to comply with this Clause where the only ports provided on the equipment, in addition to a coaxial cable connection and a PSTN interface, are audio or video ports and analogue or data ports not intended to be used for telecommunications purposes.		N/A
Annex P	Add the following Normative References: AS/NZS 3191, Electric flexible cords AS/NZS 3112, Approval and test specification—Plugs and socket-outlets		N/A
Index	1.Insert the following between ‘asbestos, not to be used as insulation’ and ‘attitude see orientation’: AS/NZS 3112……..4.3.6 AS/NZS 3191……..3.2.5.1(Table 3B) AS/NZS 60064…….4.1.201 AS/NZS 60695.2.11……4.7.201.2, 4.7.201.3 AS/NZS 60695.11.10……..4.7.201.1, 4.7.201.5 AS/NZS 60695.11.5……4.7.201.3 AS/NZS 60825.1…….4.3.13.5.1 AS/NZS 60825.2…….4.3.13.5.1 2. Insert the following between ‘positive temperature coefficient(PTC) device’ and ‘Powder’: Potential ignition source……1.2.201, 4.7.201.3, 4.7.201.5		N/A

CA Canada			**CA**
	Canada and the United States of America have adopted a single, bi-national standard, CAN/CSA C22.2 No. 60950-1/UL60950-1, Second Edition, which is based on IEC 60950-1, Second Edition. This bi-national standard should be consulted for further details on the national conditions and differences summarized below.		—
SPECIAL NATIONAL CONDITIONS			—
	The following is a summary of the key national differences based on national regulatory requirements, such as the Canadian Electrical Code (CEC) Part and the Canadian Building Code, which are referenced in legislation and which form the basis for the rules and practices followed in electrical and building installations.		—
1.1.1	All equipment is to be designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, the Canadian Electrical Code (CEC), Part I, CAN/CSA C22.1, and when applicable, the National Electrical Safety Code, IEEE C2. Also, unless marked or otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.		N/A
1.1.2	Baby monitors are required to comply with ASTM F2951, Consumer Safety Specification for Baby Monitors		N/A
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.		N/A
1.5.5	For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type (e.g., DP, CL2) specified in the CEC/NEC. For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the CEC are required to have special construction features and identification markings.		N/A

CA Canada			**CA**
1.7.1	Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings. A voltage rating that exceeds an attachment plug cap rating is only permitted if it does not exceed the extreme operating conditions in Table 2 of CAN/CSA C22.2 No. 235, and if it is part of a range that extends into the Table 2 "Normal Operating Conditions." Likewise, a voltage rating shall not be lower than the specified "Normal Operating Conditions," unless it is part of a range that extends into the "Normal Operating Conditions."		N/A
1.7.7	Wiring terminals intended to supply Class 2 outputs in accordance with CEC Part 1 or NEC shall be marked with the voltage rating and “Class 2” or equivalent. Marking shall be located adjacent to the terminals and shall be visible during wiring.		N/A
2.5	Where a fuse is used to provide Class 2, Limited Power Source, or TNV current limiting, it shall not be operator-accessible unless it is not interchangeable.		N/A
2.6	Equipment with isolated ground (earthing) receptacles is required to comply with NEC 250.146(D) and CEC 10-112 and 10-906(8).		
2.7.1	Suitable NEC/CEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable. Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.		N/A
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains shall be in accordance with the NEC/CEC.		N/A
3.2.1	Power supply cords are required to have attachment plugs rated not less than 125 percent of the rated current of the equipment.		N/A
3.2.1.2	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, is required to comply with special earthing, wiring, marking and installation instruction requirements.		N/A
3.2.3	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.		N/A

CA Canada			**CA**
3.2.5	Power supply cords are required to be no longer than 4.5 m in length. Minimum cord length is required to be 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement. Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC.		N/A
3.2.9	Permanently connected equipment is required to have a suitable wiring compartment and wire bending space.		N/A
3.3	Wiring terminals and associated spacings for field wiring connections shall comply with CSA C22.2 No. 0.		N/A
3.3.3	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm^2).		N/A
3.3.4	Terminals for permanent wiring, including protective earthing terminals, are required to be suitable for Canadian/US wire gauge sizes, rated 125 percent of the equipment rating, and be specially marked when specified (1.7.7).		N/A
3.3.5	First column of Table 3E revised to require “Smaller of the RATED CURRENT of the equipment or the PROTECTIVE CURRENT RATING of the circuit under consideration.”		N/A
3.4.2	Motor control devices are required for cord-connected equipment with a motor if the equipment is rated more than 12 A, or if the motor has a nominal voltage rating greater than 120 V, or is rated more than 1/3 hp (locked rotor current over 43 A).		N/A
3.4.8	Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position.		N/A
3.4.11	For computer room applications, equipment with battery systems capable of supplying 750 VA for five minutes are required to have a battery disconnect means that may be connected to the computer room remote power-off circuit.		N/A
4.3.12	The maximum quantity of flammable liquid stored in equipment is required to comply with NFPA 30.		N/A
4.3.13.5	Equipment with lasers is required to meet the U.S. Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A

CA Canada			**CA**
4.7	For computer room applications, automated information storage systems with combustible media greater than 0.76 m^3 (27 cu ft) are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.		N/A
4.7.3.1	For computer room applications, enclosures with combustible material measuring greater than 0.9 m^2 (10 sq ft) or a single dimension greater than 1.8 m (6 ft) are required to have a flame spread rating of 50 or less. For other applications, enclosures with the same dimensions require a flame spread rating of 200 or less.		N/A
	Non-metallic enclosures of equipment for use in spaces used for environmental air (plenums) are required to comply with UL 2043.		N/A
Annex H	Equipment that produces ionizing radiation is required to comply with the Canadian Radiation Emitting Devices Act, REDR C1370 and/or Code of Federal Regulations, 21 CFR 1020, as applicable.		N/A
OTHER DIFFERENCES The following key national differences are based on requirements other than national regulatory requirements.			—
1.5.1	Some components and materials associated with the risk of fire, electric shock, or personal injury are required to have component or material ratings in accordance with the applicable national (Canadian and/or U.S.) component or material standard requirements. These components include: attachment plugs, battery packs (rechargeable type, used with transportable equipment), cathode ray tubes, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), cord sets and power supply cords, direct plug-in equipment, enclosures (outdoor), flexible cords and cables, fuses (branch circuit), fuseholders, ground-fault current interrupters, industrial control equipment, insulating tape, interconnecting cables, lampholders, limit controls, printed wiring, protectors for communications circuits, receptacles, solid state controls, supplementary protectors, switches (including interlock switches), thermal cutoffs, thermostats, (multi-layer) transformer winding wire, transient voltage surge suppressors, tubing, wire connectors, and wire and cables.		N/A

CA Canada			**CA**
1.6.1.2	A circuit for connection to the DC Mains Supply is classified as either a SELV Circuit, TNV-2 Circuit or Hazardous Voltage Circuit depending on the maximum operating voltage of the supply. This maximum operating voltage shall include consideration of the battery charging “float voltage” associated with the intended supply system, regardless of the marked power rating of the equipment.		N/A
2.3.1	For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 Vpeak or 60 Vd.c., the maximum acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.		N/A
2.3.2.1	In the event of a single fault between TNV and SELV circuits, the limits of 2.2.3 apply to SELV Circuits and accessible conductive parts.		N/A
2.6.2	Equipment with functional earthing is required to be marked with the functional earthing symbol (IEC 60417-6092)		N/A
2.6.3.4	Protective bonding conductors of non-standard protective bonding constructions (e.g., printed circuit traces) may be subjected to the additional limited short circuit test conditions specified.		N/A
4.2.8.1	Enclosures around CRTs with a face diameter of 160 mm or more are required to reduce the risk of injury due to the implosion of the CRT.		N/A
4.3.2	Equipment with handles is required to comply with special loading tests.		N/A
4.3.8	Battery packs for both portable and stationary applications are required to comply with special component requirements.		N/A
5.1.8.3	Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests.		N/A
5.3.7	Internal (e.g., card cage) SELV circuit connectors and printed wiring board connectors that are accessible to the operator and that deliver power are to be overloaded. During abnormal operating testing, if a circuit is interrupted by the opening of a component, the test shall be repeated twice (three tests total) using new components as necessary.		N/A
6.4	Equipment intended for connection to telecommunication network outside plant cable is required to be protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC.		N/A

CA Canada			**CA**
Annex EE	Articulated accessibility probe (Fig EE.3) required for assessing accessibility to document/media shredders instead of the Figure 2A test finger.		N/A
M.2	Continuous ringing signals up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.		N/A
Annex NAD	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements.		N/A

CN China			**CN**
1.1.2	GB 4943.1-2011 applies to equipment for use at altitudes not exceeding 5000m above sea level, primarily in regions with moderate or tropical climates. Amend the third dashed paragraph of 1.1.2 as: ——equipment intended to be used in vehicles, on board ships or aircraft, at altitudes greater than 5000m;		N/A
1.4.5	If the equipment is intended for direct connection to an AC MAINS SUPPLY, the tolerances on RATED VOLTAGE shall be taken as +6 % and –10 % in 1.4.5 of IEC60950(ed.3), but it shall be taken as +10 % and –10 % in 1.4.5 of GB4943-2001. The first dash paragraph"− the RATED VOLTAGE is 230 V single-phase or 400 V three-phase, in which case the tolerance shall be taken as +10 % and –10 % " is deleted in GB4943-2011.		N/A
1.4.12.1	Tma in clause 1.4.12.1 amended as: Tma: is the maximum ambient temperature permitted by the manufacturer's specification, or 35 °C, whichever is greater. Add note 1: For equipment not to be operated at tropical climatic conditions, Tma: is the maximum ambient temperature permitted by the manufacturer's specification, or 25 °C, whichever is greater. Add note 2: For equipment is to be operated at 2000m-5000m above sea leave, its temperature test conditions and temperature limits are under consideration.		N/A
1.5. 2	Add a note behind the first break off section in Clause 1.5.2: A component used shall comply with related requirements corresponding altitude of 5000m.		N/A
1.7	Add one paragraph before the last paragraph: The required marking and instruction should be given in normative Chinese unless otherwise specified.		N/A
1.7.1	Based on the AC mains supply of China, the RATED VOLTAGE should be 220V (single phase) or 380V (three-phases) for single rated voltage, for RATED VOLTAGE RANGE, it should cover 220V or 380V (three-phases), for multiple RATED VOLTAGES, one of them should be 220V or 380V (three-phases) and set on 220V or 380V (three-phases) when manufactured. And the RATED FREQUENCY or RATED FREQUENCY RANGE should be 50Hz or include 50Hz.		N/A

CN China			**CN**
1.7.2.1	Add requirements of warning for equipment intended to be used at altitudes not exceeding 2000m or at non-tropical climate regions: For equipment intended to be used at altitude not exceeding 2000m, a warning label containing the following or a similar appropriate wording, or a symbol as in annex DD shall fixed to the equipment at readily visible place. "Only used at altitude not exceeding 2000m." For equipment intended to be used in not-tropical climate regions, a warning label containing the following or a similar appropriate wording, or a symbol as in annex DD shall fixed to the equipment at readily visible place. "Only used in not-tropical climate regions." If only the symbol used, the explanation of the symbol shall be contained in the instruction manual. The above statements shall be given in a language acceptable to the regions where the apparatus is intended to be used.		N/A
2.7.1	Amended the first paragraph as: Protection in PRIMARY CIRCUITS against overcurrent short-circuits and earth faults shall be provided as an integral part of the equipment except special provisions. And the protective device shall meet the requirement of Clause 5.3. Delete note of Clause 2.7.1.		N/A

CN China			CN
2.9.2	First section of Clause 2.9.2 amended as two sections: Where required by 2.9.1, 2.10.8.3, 2.10.10 or 2.10.11, humidity conditioning is conducted for 120 h in a cabinet or room containing air with ambient temperature 40±2℃ and a relative humidity of (93±3)%. During this conditioning the component or subassembly is not energized. For equipment not to be operated at tropical climatic conditions, Where required by 2.9.1, 2.10.8.3, 2.10.10 or 2.10.11, humidity conditioning is conducted for 48 h in a cabinet or room containing air with a relative humidity of (93±3) %. The temperature of the air, at all places where samples can be located, is maintained within 2 °C of any convenient value between 20 °C and 30 °C such that condensation does not occur. Due to pretreatment of equipment operated at high altitude area is humidity conditioning withstand hot shock, specific requirements are to be considered. Add note: For equipment to be operated at 2000 m - 5000m above sea level, assessment and requirement of humidity conditioning for Insulation material properties are considered.		N/A
2.10.3.1	Amend the third paragraph of Clause 2.10.3.1 to be: These requirements apply for equipment to be operated up to 2000 m above sea level. For equipment to be operated at more than 2000 m above sea level and up to 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000m given in Table A.2 of IEC 60664-1. For equipment to be operated at more than 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of IEC 60664-1. Linear interpolation is permitted between the nearest two points in Table A.2. The calculated minimum CLEARANCE using this multiplication factor shall be rounded up to the next higher 0,1 mm increment.		N/A
2.10.3.3& 2.10.3.4	Add "(applicable for altitude up to 2000m)" in header of Table 2K, 2L and 2M.		N/A

CN China			**CN**
2.10.3.4	Add a new section above Table 2K and in Clause 2.10.3.4: Minimum CLEARANCES determined by above rules apply for equipment to be operated up to 2000m above sea level. For equipment to be operated at 2000 m - 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000m given in Table A.2 of GB/T16935.1（IEC 60664-1). For equipment to be operated at more than 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of GB/T16935.1.		N/A
3.2.1.1	Add a paragraph before the last paragraph: Plugs connected to AC mains supply shall comply with GB 1002 or GB 1003 or GB/T 11918 as applicable.		N/A
4.2.8	Clause 4.2.8 cathode ray tubes quoted Clause 18 of GB8898-2011. Delete note of Clause 4.2.8.		N/A
Annex E	Last section of Annex E amended as: For comparison of winding temperatures determined by the resistance method of this annex with the temperature limits of Table 4B, 35 °C shall be added to the calculated temperature rise. And add note: for equipment not to be operated at tropical climatic conditions, 25 °C shall be added to the calculated temperature rise to compare with the temperature of Table 4B.		N/A
Annex G.6	Change the second section of Clause G.6 to be: For equipment to be operated at 2000 m - 5000m above sea level, the minimum CLEARANCE shall be multiplied by the factor 1.48 corresponding altitude of 5000m given in Table A.2 of GB/T16935.1. For equipment to be operated at more than 5000 m above sea level, the minimum CLEARANCE shall be multiplied by the factor given in Table A.2 of IEC 60664-1. Linear interpolation is permitted between the nearest two points in Table A.2. The calculated minimum CLEARANCE using this multiplication factor shall be rounded up to the next higher 0,1 mm increment.		N/A
Annex BB (informative)	Amended as : The differences between Chinese national standards GB 4943.1-2011 and GB 4943-2001.		N/A

CN China			**CN**
Annex DD (normative)	Added annex DD: Instructions for the new safety warning labels. DD.1 Altitude warning label Meaning of the label: Evaluation for apparatus only based on altitude not exceeding 2000m, therefor it's the only operating condition applied for the equipment .There may be some potential safety hazard if the equipment is used at altitude above 2000m . DD.2 Climate warning label Meaning of the label: Evaluation for apparatus only based on temperate climate condition, therefor it's the only operating condition applied for the equipment .There may be some potential safety hazard if the equipment is used in tropical climate region.		N/A
Annex EE (informative)	Added annex EE: Illustration relative to safety explanation in normative Chinese, Tibetan, Mongolian, Zhuang Language and Uighu.		N/A
Other amendments	In accordance with the relevant CTL decisions and the amendments of IEC 60950-1, the specific requirements or mistakes in IEC standard are corrected or editorially modified in this part, Including clause 1.7, 2.1.1.7, 2.9.2, Table 2H, Figure 2H, F.8, F.9, M.3 and Annex U.		N/A

CN China		**CN**
Quoting standards and reference documents	The principles of quoting and referring to other standards in Annex P and reference documents of IEC 60950-1 are as follows: If the date of the reference document is given, only that edition applies, excluding any subsequent corrigenda and amendments. However, parties to agreements based on this part are encouraged to investigate the possibility of applying the most recent editions of the reference documents. For undated references, the latest edition of the referenced document applies, including any corrigenda and amendments. For the usage of international standards in Chinese national standards and industry standards is various, in the aim of achieving easy operation and based on the requirements of GB/T 1.1 and GB/T 20000.2, when quoting an entire international standard in the normative quoting files and reference documents of Annex P of this part, the principles of quotation are as follows: - If there is no national standard or industry standard corresponding to the international standard, then the international standard is quoted; - If there is national standard or industry standard corresponding to the international standard, then either the national or industry standard is quoted; - If the date of the national standard or industry standard is not given, the latest edition of the standard applies; - The national standard or industry standard number, corresponding international standard number and the consistency level code should be identified in parentheses behind the listed national standard or industry standard. When quoting several chapters or clauses of the international standard, the principles of quotation are as follows: - If there is no national standard or industry standard corresponding to the international standard, then the international standard is quoted; - If there is national standard or industry standard corresponding to the international standard, then either the national or industry standard is quoted. Meanwhile, in order to retain the relevant information on international standards, informative annex CC is increased, which gives the table about the comparison of the normative quoting files and reference documents in IEC 60950-1: 2005 and GB 4943.1-2011.	N/A

DE Germany			**DE**
1.5	The moulded plug of plug-in power supplies will be considered as component and will be generally evaluated in Germany according to DIN VDE 0620-1:2010 respectively DIN VDE 0620-1:2013 and DIN VDE 0620-2-1:2013. After the test according to DIN VDE 0620-2-1:2013, sub-clause 24.2, the plug be shall still pass the test according to DIN VDE 0620-101:1992 clause 7, figure 2 “Gauge for interchangeability”. It should be possible to insert the plug without applying an excessive force such that the end surface touches the surface of the gauge.		N/A
Annex ZC, cl. 1.7.2.1	According to GPSG, section 2, clause 4: If certain rules on the use, supplementation or maintenance of an item of technical work equipment or ready-to-use commodity must be observed in order to guarantee safety and health, instructions for use in German must be supplied when it is brought into circulation.		P

DK Denmark			DK
1.2.4.1	In Denmark, certain types of Class I appliances (see 3.2.1.1) may be provided with a plug not establishing earthing conditions when inserted into Danish socket-outlets.		N/A
1.7.5	In Denmark, socket-outlets for providing power to other equipment shall be in accordance with the Heavy Current Regulations, Section 107-2-D1, Standard Sheet DK 1-3a, DK 1-5a or DK 1-7a, when used on Class I equipment. For STATIONARY EQUIPMENT the socket-outlet shall be in accordance with Standard Sheet DK 1-1b or DK 1-5a. For CLASS II EQUIPMENT the socket outlet shall be in accordance with Standard Sheet DKA 1-4a.		N/A
3.2.1.1	In Denmark, supply cords of single-phase equipment having a rated current not exceeding13 A shall be provided with a plug according to the Heavy Current Regulations, Section 107-2-D1. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If poly-phase equipment and single-phase equipment having a RATED CURRENT exceeding 13 A is provided with a supply cord with a plug, this plug shall be in accordance with the Heavy Current Regulations, Section 107-2-D1 or EN 60309-2.		N/A

ES Spain			**ES**
3.2.1.1	In Spain, supply cords of single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to UNE 20315:1994. Supply cords of single-phase equipment having a rated current not exceeding 2,5 A shall be provided with a plug according to UNE-EN 50075:1993. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules, shall be provided with a plug in accordance with standard UNE 20315:1994. If poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with UNE-EN 60309-2.		N/A

FI Finland			**FI**
1.5.7.1	Resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.2. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2.		N/A
1.5.9.4	The third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.		N/A
1.7.2.1	CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet. The marking text shall be as follows: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan"		N/A
2.3.2	There are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.		N/A
2.10.5.13	There are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.		N/A

5.1.7.1	TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment:
	• STATIONARY PLUGGABLE EQUIPMENT TYPE A that
	  ○ is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in telecommunication centre; and
	  ○ has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and
	  ○ is provided with instructions for the installation of that conductor by a SERVICE PERSON;
	• STATIONARY PLUGGABLE EQUIPMENT TYPE B;
	• STATIONARY PERMANENTLY CONNECTED EQUIPMENT.
			N/A

FI Finland			**FI**
6.1.2.1	Add the following text between the first and second paragraph of the compliance clause: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. Alternatively for components, there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition - passes the tests and inspection criteria of 2.10.11 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.10 shall be performed using 1,5 kV), and - is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV. It is permitted to bridge this insulation with an optocoupler complying with 2.10.5.4 b). It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions: - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14:2005, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 60384-14:2005 - the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14:2005, in the sequence of tests as described in EN 60384-14:2005.		N/A

FI Finland			**FI**
6.1.2.2	The exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.		N/A
7.2	For requirements see 6.1.2.1 and 6.1.2.2 of this annex. The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.		N/A

GB United Kingdom			**GB**
2.6.3.3	In the **United Kingdom**, the current rating of the circuit shall be taken as 13 A, not 16 A.		N/A
2.7.1	In the **United Kingdom**, to protect against excessive currents and short-circuits in the PRIMARY CIRCUIT of DIRECT PLUG-IN EQUIPMENT, tests according to 5.3 shall be conducted, using an external protective device rated 30 A or 32 A. If these tests fail, suitable protective devices shall be included as integral parts of the DIRECT PLUG-IN EQUIPMENT, so that the requirements of 5.3 are met.		N/A
3.2.1.1	In the **United Kingdom**, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord and plug, shall be fitted with a 'standard plug' in accordance with Statutory Instrument 1768:1994 - The Plugs and Sockets etc. (Safety) Regulations 1994, unless exempted by those regulations. NOTE 'Standard plug' is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N/A
3.2.5.1	In the **United Kingdom**, a power supply cord with conductor of 1,25 mm^2 is allowed for equipment with a rated current over 10 A and up to and including 13 A.		N/A
3.3.4	In the **United Kingdom**, the range of conductor sizes of flexible cords to be accepted by terminals for equipment with a RATED CURRENT of over 10 A up to and including 13 A is: • 1,25 mm^2 to 1,5 mm^2 nominal cross-sectional area.		N/A
4.3.6	In the **United Kingdom**, the torque test is performed using a socket outlet complying with BS 1363 part 1:1995, including Amendment 1: 1997 and Amendment 2:2003 and the plug part of DIRECT PLUG-IN EQUIPMENT shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16 and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		N/A

IE Ireland			**IE**
3.2.1.1	In Ireland, apparatus which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to I.S. 411 by means of that flexible cable or cord and plug, shall be fitted with a 13 A plug in accordance with Statutory Instrument 525:1997 National Standards Authority of Ireland (section 28) (13 A Plugs and Conversion Adaptors for Domestic Use) Regulations 1997.		N/A
4.3.6	In Ireland, DIRECT PLUG-IN EQUIPMENT is known as plug similar devices. Such devices shall comply with Statutory Instrument 526:1997 - National Standards Authority of Ireland (Section 28) (Electrical plugs, plug similar devices and sockets for domestic use) Regulations, 1997.		N/A

IL Israel			**IL**
1.6.1	Note: In Israel, this clause is applicable subject to the Electricity Law, 1954, its regulations and revisions.		P
1.7.201	The marking in the Hebrew language shall be in accordance with the Consumer Protection Order (Marking of goods), 1983. In addition to the marking required by clause 1.7.1, the following shall be marked in Hebrew language. The details shall be marked on the apparatus or on its package, or on a label properly attached to the apparatus or on the package, by bonding or sewing, in a manner that the label cannot be easily removed. 1. Name of the apparatus and its commercial designation; 2. Manufacturer's name and address. If the apparatus is imported, the importer's name and address; 3. Manufacturer's registered trademark, if any; 4. Name of the model and serial number, if any 5. Country of manufacture.		N/A
1.7.2.1	All the instructions and warnings related to safety shall also be written in the Hebrew language.		N/A
1.201	Power consumption in standby mode The equipment shall comply with the requirements of the Energy Sources Regulations (Maximum electrical power in standby mode for domestic and office electrical appliances), 20011, with a permitted deviation of up to 10%	Shall be considered during national approved	N/A
2.9.4	Add following at the beginning of the clause: In Israel, according to the Electricity Law, 1954, and the Electricity Regulations (Earthing and means of protection against electricity of voltages up to 1000V) 1991, seven means of protection against electrocution are permitted, as follows: 1) TN-S – Network system earthing; TN-C-S – Network system earthing; 2) TT – Network system earthing; 3) IT – Network Insulation Terre; 4) Isolated transformer; 5) Safety extra low voltage (SELV or ELV); 6) Residual current circuit breaker (30mA = IΔ); 7) Reinforced insulation; Double insulation (class II).		P

IL Israel			**IL**
2.201	**Prevention of electromagnetic interference** - Prior to carrying out the tests in accordance with the clauses of this standard, the compliance of the apparatus with the relevant requirements specified in the appropriate part of the standard series, SI 961, shall be checked. The apparatus shall meet the requirements in the appropriate part of the standard series, SI 961. - If there are components in the apparatus for the prevention of electromagnetic interference, these components shall not reduce the safety level of the apparatus as required by this standard.		P
3.2.1.1	Note: In Israel, the feed plug shall comply with the requirements of Israel Standard SI 32 Part1.1.		N/A
3.2.1.2	Note: At the time of issue of this standard, there is no Israel Standard for connection accessories to d.c.		P
Annex P	Normative references		P

IL Israel **IL**

P

The referenced International Standard	The substituted Israel Standard	Comments
IEC 60065: 2001	SI 60065 [(a)] - Audio, video and similar electronic apparatus – Safety requirements	The Israel Standard, excluding national modifications and additions noted, is identical to the International Standard, IEC 60065 – Edition 7.1:2005-12
IEC 60083	Si 32 Part 1.1[(a)] - Plugs and socket-outlets for household and similar purposes: plugs and socket-outlets for single phase up tp 16A-General REuse standardized	The Israeli Standard, excluding national modifications and additions noted, is identical to the International Standard, IEC 60884-1 – Third edition:2002-06
IEC 60227 (all parts)	SI 60227 (all parts)- Polyvinyl chloride insulated cables of rated voltage up to and including 450/750V	The Israeli Standard series, excluding national modifications and additions noted, is identical to the Standard series, IEC 60227 (all parts)
IEC 60245 (all parts)	SI 60245 Part 1 – Rubber insulated cables - Rated voltage up to and including 450/750V: General requirements	The Israeli Standard series, excluding national modifications and additions noted, is identical to the Standard series, IEC 60245 (all parts)
IEC 60309 (all parts)[(b)]	SI 1109 Part 1 -Plugs, socket- outlets and couplers for industrial purposes: General requirements	The Israeli Standard, excluding national modifications and additions noted, is identical to the International Standard, IEC 60309-1 – Fourth edition: 1999-2.
	SI 1109 Part 2 -Plugs, socket- outlets and couplers for industrial purposes: Dimensional interchangeability requirements for pin and contact-tube accessories	The Israeli Standard, excluding national modifications and additions noted, is identical to the International Standard, IEC 60309-1 – Fourth edition: 1999-4.
IEC 60317 (all parts)[(b)]	SI 1067 Part 1 – Enameled[(e)] round copper wires with high mechanical properties	The Israeli Standard is identical to the International Electrotechnical Commission Standard IEC 3l7-1: 1980-02
	SI 1067 Part 2 - Self-fluxing enamelled[(e)] round copper wires	The Israel Standard is identical to the International Electrotechnical Commission Standard IEC 307-4: 1980-02
	SI 1067 Part 3 - Enameled[(e)] round copper wires with a temperature index of 180ºC	The Israel Standard is identical to the International Electrotechnical Commission IEC 317-8: 1980-02

IL Israel **IL**

The referenced International Standard	The substituted Israel Standard	Comments
IEC 60320 (all parts)[(b)]	SI 60320 Part 1 - Appliance couplers for household and similar general purposes: General requirements	The Israel Standard, excluding national modifications and additions noted, is identical to the International Electrotechnical Commission Standard, IEC 60320-1: Second edition: 2001-06
	SI 60320 Part 2.1 - Appliance couplers for household and similar general purposes: Sewing machine couplers	The Israel Standard, excluding national modifications and additions noted, is identical to the International Electrotechnical Commission Standard, IEC 60320-2-1: Second edition: 2000-07
	SI 60320 Part 2.2 - Appliance couplers for household and similar general purposes: Interconnection couplers for household and similar equipment	The Israel Standard, excluding national modifications and additions noted, is identical to the International Electrotechnical Commission Standard, IEC 60320-2-2: Second edition: 1998-08
	SI 60320 Part 2.3 - Appliance couplers for household and similar general purposes: appliance coupler with a degree of protection higher than IPXO	The Israel Standard, excluding national modifications and additions noted, is identical to the International Electrotechnical Commission Standard, IEC 60320-2-3: First edition: 1998-09.
IEC 60364-1: 2001	Electricity Law, 1954, with its Regulations and updates	-
IEC 60730-1: 1999 Amendment 1 (2003)	SI 60730 Part 1 - Automatic electrical controls for household and similar use: General requirements	The Israel Standard, excluding national modifications and additions noted, is identical to the International Electrotechnical Commission Standard, IEC 60730-1: Edition 3.2: 2007-03.
IEC 60825-1	SI 60825 Part 1 - Safety of products: Equipment classification and requirements	The Israel Standard, excluding national modifications and additions noted, is identical to the International Electrotechnical Commission Standard, IEC 60825-1: Second edition 3.2: 2007-03.

IL Israel **IL**

The referenced International Standard	The substituted Israel Standard	Comments
IEC 60947-1: 2004	SI 60947 Part 1 -Low-voltage switchgear and controlgear: General rules	The Israel Standard, excluding national modifications and additions noted, is identical to th International Electrotechnical Commission Standard, IEC 60947-1: Edition 5.0: 2007-06.
IEC 61058-1: 2000	SI 61058 Part 1 - Switches for appliances: General requirements	The Israel Standard, excluding national modifications and additions noted, is identical to th International Electrotechnical Commission Standard, IEC 61058-1: Edition 3.1: 2001.
ISO 3864 (all parts)(b)	SI 3864 Part 1(a) - Graphical symbols	The Israel Standard, excluding national modifications and additions noted, is identical to th International Organization for Standardization Standard, ISO 3864-1: First edition 2002-05-15

Notes:
(a) This Standard is being revised.
(b) In the International Standard series, there are parts not yet adopted as Israeli Standards. This table notes the relevant Israeli Standards, and in the Comments column, the corresponding parts of the International Standard series.
(c) Not relevant to the translation.

-The following shall be added to the annex: N/A

Israel Standards

SI 961 (all parts) – Electromagnetic compatibility

Israeli Laws, Regulations and documents

Electricity Law, 1954, with its Regulations and updates

Cosumer Protection Order (Marking of goods), 1983, Kovetz Hatakanot 4465 daed 1983-02-24

Energy Sources Regulations (Maximum electrical power in standby mode for domestic and office electrical appliances), 2011

JP Japan (H25)			JP
APPENDIX	**J3000 (H25)** Special National conditions, National deviation and other information according to MITI Ordinance No. 85.		--
1	General requirement When equipment provides with appliance inlet complying with JIS-C 8283-1(2008), soldered parts of appliance inlet is not applied by force during insert or removal of connector. This is not applied when inlet body is fixed itself and not fixed by solder.		N/A
2	Requirement for equipment		P
2.1	Electric heater, and the matches that are connected in parallel to power regulation diode, and that there is no abnormality in a state of being opened diode 1. Compliance is checked by the following.		N/A
	- Diode 1 has a rated capacity of more than the current of the main circuit, a diode which are connected in parallel, that this is the same specifications.		N/A
	- When subjected to a temperature rise test as specified in 11 JIS C 9335-2-30 (2006) and uncoupled one of the diode connected in parallel, to conform thereto. "		N/A
	In and an electric heating device, it can be in one that is connected in parallel rectifier connected to the power supply to adjust the power consumption, and that there is no abnormality in a state where the rectifier 1 is opened. Compliance is checked by the following.		N/A
	- Rectifier 1 has a rated capacity of more than the current of the main circuit, rectifiers connected in parallel, that this is the same specifications.		N/A
	- The Addition 11. JIS C 9335-1 (2003), when subjected to temperature rise test specified in the individual requirements of the application, can be adapted to this in uncoupled one of the rectifier connected in parallel. "		N/A
2.2	Electronic heater with glowing heating elements		N/A
	Surface treatment by paint or adhesive on protective frame or protective mesh shall not be used.		N/A
	Caution marking like below shall be on -easily visible place of the equipment or -Instruction manual		N/A

JP Japan (H25)			JP
APPENDIX	**J3000 (H25)** Special National conditions, National deviation and other information according to MITI Ordinance No. 85.		--
3	Components used in equipment		P
3.1	To be used for electric freezer Electric Cooling machines, electric washing machine, or electric refrigerator "		N/A
	To be used for electricity Freezer hood, electric fan, electric cooling machines, electric washing machine, or electric refrigerator		N/A
	Due to malfunction of the capacitor, which are housed to prevent the spread of flame or melt, the outer shell of metal or ceramic. However, the shell, there may be openings for connecting wires to the motor capacitor.		N/A
	Due to malfunction of the capacitor, which are housed to prevent nucleic acid melt or flame, the outer metal or ceramic. However, the shell, there may be openings for connecting wires to the motor capacitor.		N/A
	In this case, the expression "are housed in a ceramic shell or metal" is housed case ceramic (inner shell) metal or prevent the diffusion of the melt flame or means of the shell except the capacitor touches the test finger even if there to within 50mm of the capacitor is non-metallic section that refers to, housed along with capacitor not specified JIS C 4908 (2007) in the case of metal or ceramic thereof, and the melt or flame shall be deemed to prevent it from spreading.		N/A
	No non-metallic materials within 50 mm from capacitor surface		N/A
	Non-metallic material with 50 mm from capacitor surface comply with needle frame test of JIS 9335-1(2003), Annex E		N/A
	Non-metallic material with 50 mm from capacitor surface comply with V-1 test of JIS C 60965-11-10(2006)		N/A

JP Japan (H25)			JP
APPENDIX	**J3000 (H25)** Special National conditions, National deviation and other information according to MITI Ordinance No. 85.		--
3.2	Plug directly inserted to outlet used refrigerator or electric freezer. Shall comply with - Face contact with outlet shall have CTI with more than 400 according to JIS C 2134(2007) or - Supporting material of blades shall comply with glow wire test by temperature of 750°C according to JIS C 60695-2-11(2004) or JIS C 60695-2-12(2004). Materials having glow wire frame temperature of 775°C are acceptable.		N/A

JP Japan (H26)			JP
1.2.4.1	Replace the existing NOTE as NOTE 1, and add NOTE 2 as following: NOTE 2: Even if the equipment is designed as CLASS I EQUIPMENT, if a 2-pin plug adaptor with a protective earthing lead wire (adaptor which converts a plug for CLASS I EQUIPMENT to a 2-pin plug with no earing contact) or a cord set having a 2-pin plug with a protective earthing lead wire is packed as accessory together with the equipment or if use of those is recommended to the users, the equipment is considered as CLASS 0I EQUIPMENT.		N/A

JP Japan (H26)			JP
1.2.4.3A	Add 1.2.4.3A as following: 1.2.4.3A CLASS 0I EQUIPMENT Equipment having a mains plug without earthing contact, which protection against electric shock is achieved by: - using BASIC INSULATION; and - for the measures to connect conductive part(s) regarded as part at HAZARDIUS VOLTAGE in the event of fault of BASIC INSULATION to PROTECTIVE EARTHING CONDUCTOR, equipping any one of the following: a) mains plug with a protective earthing lead wire, this includeds the following cases: - where a 2-pin plug adaptor with a protective earthing lead wire is packed as accessory together with the equipment; or - where use of it is recommended. b) independent protective earthing terminal (see 2.6.5.8A) if the equipment uses a power supply cord of two conductors (exclude earthing conductor) NOTE - CLASS 0I EQUIPMENT may have a part constructed with DOUBLE INSUILATION or REINFORCED INSULATION.		N/A
1.3.2	Add the following notes after the first paragraph: NOTE 1 Transportable or similar equipment that is relocated frequently for intended usage should not be designed as Class I or Class 0I equipment unless it is intended to be installed by service personnel. NOTE 2 Considering wiring circumstance in Japan, equipment intended to be installed where the provision for earthling connection is unlikely should not be designed as Class I or Class 0I equipment unless it is intended to be installed by service personnel.		P

JP Japan (H26)			JP
1.5.1	Replace the first paragraph with the following: Where safety is involved, components shall comply either with the requirements of this standard or with the safety aspects of the relevant JIS component standard or IEC component standards in case there is no applicable JIS component standard is available. However, in case a component that falls within the scope of the METI Ministerial ordinance (No. 85:1962) is properly used in accordance with its marked ratings, the requirements of 1.5.4, 2.8.7 and 3.2.5 apply, and in addition, a cord connector of power supply cord set matching with an appliance inlet specified in the standard sheets of IEC 60320-1, shall comply with relevant standard sheet of IEC 60320-1. Replace NOTE 1 with the following: NOTE 1 A JIS or an IEC component standard is considered relevant only if the component in question clearly falls within its scope.		P
1.5.2	Replace first sentence in the first dashed paragraph with the following: - a component that has been demonstrated to comply with a JIS component standard harmonized with the relevant IEC component standard, or where such JIS component standard is not available, a component that has been demonstrated to comply with the relevant IEC component standard shall be checked for correct application and use in accordance with its rating. Replace existing NOTE to NOTE 1 without modification of the sentence in the second dashed paragraph. Replace “where no relevant IEC component standard exists” to “where neither the relevant IEC component standard nor JIS standard corresponding to the relevant IEC component standard exists” in the third dashed paragraph. Add NOTE 2 as follows: NOTE 2 If an appliance inlet with a rated current of 10A, which is of STANDARD SHEET C14 specified in JIS C 8283-1, is used for equipment with a rated voltage of 125V or less; and with a rated current of exceeding 10A, refer to 1.7.5A.		P
1.5.9.1	Add the following at the end of NOTE 1: Gas discharge tube (GDT) may be connected to VDR in series.		N/A

JP Japan (H26)			JP
1.5.9.4	Add the following at last paragraph: If a GDT complies with the requirements for FUNCTIONAL INSULATION, the GDT may be connected to a VDR bridging BASIC INSULATION in accordance with the conditions specified in this sub-clause in series.		N/A
1.7.1	Replace the existing dashed items for manufacturer's name etc. and for model identification etc. with the following respectively: - manufacturer's (or responsible business operator's) name or trade-mark or identification mark; - manufacturer's (or responsible business operator's) model identification or type reference; In the last paragraph, replace "ISO 7000 or IEC 60417" with "JIS S 0101, ISO 7000 or IEC 60417".		P
1.7.2.1	Add the following: Instructions and the marking(s) on equipment, which related to safety, shall be made in Japanese.		N/A
1.7.5	Replace IEC 60083 with JIS C 8303 in the second paragraph.		N/A

JP Japan (H26)			JP
1.7.5A	Add the following new clause after 1.7.5 1.7.5.A Power supply cord set If an appliance inlet with a rated current of 10 A, which is of STANDARD SHEET C14 specified in JIS C 8283-1, is used for equipment with a rated voltage of 125 V or less and with a rated current of exceeding 10 A, the operating instructions shall provide the following or equivalent instruction: "この機器に同こん(梱)した指定の電源コードセットだけを使用する。" For equipment with an appliance inlet, if a power supply cord set is not provided by packing together with the equipment, the operating instructions shall provide information on the applicable power supply cord set. NOTE For the combination of CLASS 0I EQUIPMENT equipped with an appliance inlet with earthing contact and a power supply cord set of two conductors (exclude earthing conductor), to pack the power supply cord set together with the equipment and to provide a sentence calling attention of the following purport in the operating instructions are recommended, because such power supply cord set is a special kind of cord set: - this is usable only for this equipment; and - to use this for other equipment is not allowed.		N/A
1.7.14A	Add the following new clause after 1.7.14 1.7.14A Marking for protective earthing connection for CLASS 0I EQUIPMENT CLASS 0I EQUIPMENT shall be provided with the following or equivalent instruction: - on the mains-plug or the easily visible section of equipment, the following instruction: 必ず接地接続を行って下さい。 - in the easily visible section of equipment or in the operating instructions, the following instruction: 接地接続は必ず,電源プラグを電源につなぐ前に行って下さい。 また,接地接続を外す場合は,必ず電源プラグを電源から切り離してから行って下さい。		
1.7.14B	Add the following new clause after 1.7.14 1.7.14B Protective earth wire used for CLASS 0I EQUIPMENT For CLASS 0I EQUIPMENT equipped with a separate protective earthing terminal as main protective earthing terminal, if a protective earth wire is not provided by packing together with the equipment, the operating instructions shall provide information on the applicable protective earth wire. (See 2.6.3.2.)		

JP Japan (H26)			JP
2.1.1.1	In b) of the fifth paragraph, replace “IEC 60083, IEC 60309, IEC 60320, IEC 60906-1 or IEC 60906-2” with “JIS C 8303, (the Ministerial Ordinance establishing Technical Requirements for Electrical Appliances and Materials, MEIT Ordinance No. 85, Clause 1 (METI Ordinance No. 34 of 2013), JIS C 8285, the IEC 60309 series of standards, the JIS C 8283 series of standards, the IEC 60320 series of standards”.		N/A
2.6.3.2	Add the following: If the conductor of protective earthing lead wire or the protective earth wire of CLASS 0I EQUIPMENT is of single-core, it shall be one of the following: - annealed copper wire of 1,6 mm in diameter, or metallic wire having the same or more strength and diameter and being not easily corrosive; or - single-core cord or single-core cabtyre cable (sheathed flexible cable), which have a cross-sectional area of at least 1,25 mm^2.		N/A
2.6.3.5	Add the following: However, this requirement does not apply to the inside conductor of power supply cord (or power supply cord set), which has been molded together with a plug and a connector and has been sheathed.		N/A
2.6.4.2	Add the following: For CLASS 0I EQUIPMENT equipped with a separate protective earthing terminal, the protective earthing terminal may be used as the main protective earthing terminal.		N/A
2.6.5.4	Replace “protective earthing terminals” with “protective earthing and protective bonding terminals”.		P
2.6.5.8A	Add the following new clause after 2.6.5.8 2.6.5.8A Earthing of CLASS 0I EQUIPMENT Plugs with a lead wire for earthing shall not be used for equipment having a rated voltage exceeding 150 V. For plugs with a lead wire for earthing, the lead wire shall not be earthed by a clip. CLASS 0I EQUIPMENT shall be provided with an earthing terminal or a lead wire for earthing in the external location where easily visible.		N/A

JP Japan (H26)			JP
2.10.3.1	In the third paragraph, replace IEC 60664-1 with JIS C 60664-1. Replace the 8th paragraph with the following: The above minimum CLEARANCES for connectors do not apply to: - connectors that comply with JIS C 8285, the IEC 60309 series of standards, the JIS C 8283 series of standards, the IEC 60320 series of standards or JIS C 8303; and - connectors that comply with the Ministerial Ordinance establishing Technical Requirements for Electrical Appliances and Materials MEIT Ordinance No. 85, Clause 1 (METI Ordinance No. 34 of 2013), and comply with the dimensions specified in the JIS C 8283 series of standards, JIS C 8303 or IEC 60309-2; see also 1.5.2.		N/A
2.10.3.2	In the bottom column of Table 2J, add the following: In Japan, the MAINS TRANSIENT VOLTAGE value against the nominal AC MAINS SUPPLY voltage of 100 V is decided by applying the columns for the AC MAINS SUPPLY voltage of 150 V.		N/A
2.10.3.3	In Table 2L, add the following into the column specifying the additional CLEARANCES and at the end: For intermediate voltage values between the PEAK WORKING VOLTAGE values given in this table, linear interpolation is permitted between the nearest two points, the calculated additional minimum CLEARANCE being rounded up to the next higher 0,1 mm increment.		N/A
2.10.4.3	Replace the 6th paragraph with the following: The above minimum CLEEPAGE DISTANCES for connectors do not apply to: - connectors that comply with JIS C 8285, the IEC 60309 series of standards, the JIS C 8283 series of standards, the IEC 60320 series of standards or JIS C 8303; and - connectors that comply with the Ministerial Ordinance establishing Technical Requirements for Electrical Appliances and Materials MEIT Ordinance No. 85, Clause 1 (METI Ordinance No. 34 of 2013), and comply with the dimensions specified in the JIS C 8283 series of standards, JIS C8303 or IEC 60309-2; see also 1.5.2.		N/A
2.10.9	Replace clause which as test method of *T*[1] from 1.4.5 to 1.4.12.		N/A

JP Japan (H26)			JP
3.2.1.1	Add the following: When equipment with an appliance inlet connects to AC mains supply, see clause 1.7.5A for the relevant mark of power supply cord set.		N/A
3.2.3	Add the following after Table 3A: Table 3A applies when cables complying with JIS C 3662 or JIS C 3663 are used. In case of other cables, the cable entries shall be so designed that a conduit suitable for the cable used can be fitted.		P
3.2.4	Add the following: The equipment shall have a structure of which the soldered sections of the terminals of appliance inlet are not subjected to mechanical stress during the insertion or removal of the connector, except the case fixing the appliance inlet itself mechanically but not only by soldering.		N/A
3.2.5.1	At the end of the first dashed item, replace "; and" with ", or be a sheathed cord complying with Appendix 1 specified in the Interpretation for the Ministerial Ordinance establishing Technical Requirements for Electrical Appliances and Materials MEIT Ordinance No. 85, Clause 1 (METI Ordinance No. 34 of 2013) ; and".		N/A
	In the second dashed item, replace "insulated:" with "insulated, be a cord of the following or be a sheathed cord complying with Appendix 1 specified in the Interpretation for the Ministerial Ordinance establishing Technical Requirements for Electrical Appliances and Materials MEIT Ordinance No. 85, Clause 1 (METI Ordinance No. 34 of 2013), :"		N/A
	In the third dashed item, add the following: However, the coating of the protective earth conductor inside covered with sheath (cord set) power cord integrally formed with the connector and the plug need not be a combination of green and yellow. In addition, the power cord of CLASS OI EQUIPMENT having a protective earth conductor separately, it is not necessary to provide a protective earth conductor.		N/A

JP Japan (H26)			JP
	Replace the existing fourth dashed item with the following: - if those complying with JIS C 3662-5 or JIS C 3663-4, have conductors with cross-sectional areas not less than those specified in Table 3B, and if others, comply with the relevant wiring rules. In Table 3B, replace “IEC 60320” with “the JIS C8283 series of standards or the IEC 60320 series of standards”.		N/A
3.3.4	Add the following note to Table 3D: NOTE For cables other than those complying with JIS C 3662 or JIS C 3663, terminals shall be suitable for the size of the intended cables.		P
3.3.7	Add the following after the first sentence: This requirement is not applicable to the external earting terminal of Class 0I equipment.		N/A
4.3.4	Add the following after the first sentence: This requirement also applies to those connections in Class 0I equipment, where CLEARANCE or CREEPAGE DISTANCES over BASIC INSULATION would be reduced to less than the values specified in 2.10.		N/A
4.3.5	In the paragraph, replace “IEC 60083 or IEC 60320” with “the JIS C 8283 series of standards, JIS C 8303 or JIS C 8358”.		N/A
4.5.3	In the item b in Table 4B, add the following: NOTE If no data of material is available, Appendix 4, 1(1),¤,3 specified in the Interpretation for “the Ministerial Ordinance establishing Technical Requirements for Electrical Appliances and Materials MEIT Ordinance No. 85, Clause 1 (METI Ordinance No. 34 of 2013)” is applicable. In the item c in Table 4B, replace IEC 60085 with JIS C 4003.		N/A
5.1.3	Add a note after the first paragraph as follows: NOTE Attention should be drawn to that majority of three-phase power system in Japan is of delta connection, and therefore, in that case, the test is conducted using the test circuit from IEC 60990, figure 13.		N/A

JP Japan (H26) JP

5.1.6 Replace Table 5A as follows: P

Type of equipment	Terminal A of measuring instrument connected to:	Maximum TOUCH CURRENT mA r.m.s. 1)	Maximum PROTECTIVE CONDUCTOR CURRENT
All equipment	Accessible parts and circuits not connected to protective earth	0,25	-
HAND-HELD	Equipment main protective earthing terminal (if any) CLASS I EQUIPMENT	0,75	-
MOVABLE (other than HAND-HELD, but including TRANSPORTABLE EQUIPMENT		3,5	-
STATIONARY, PLUGGABLE TYPE A		3,5	-
All other STATIONARY EQUIPMENT - not subject to the conditions of 5.1.7 - subject to the conditions of 5.1.7		3,5 -	- 5 % of input current
HAND-HELD	Equipment main protective earthing terminal (if any) CLASS 0I EQUIPMENT	0,5	-
Others		1,0	-

a If peak values of TOUCH CURRENT are measured, the maximum values are obtained by multiplying the r.m.s. values in the table by 1,414.

b Some unearthed accessible parts are covered in 1.5.6 and 1.5.7 and the requirements of 2.4 apply. These may be different from those in 5.1.6.

6 Add following in the end of NOTE 1: N/A

For suitable additional measures, see Annex JB.

6.1.2.1 Add the following: N/A

NOTE 3 For example, the highest nominal voltage is 230 V in Europe and 120 V in North America.

JP Japan (H26)			JP
Annex G.6	Replace the existing 8th paragraph with the following: The above minimum CLEARANCES for connectors do not apply to: - connectors that comply with JIS C 8285, the IEC 60309 series of standards, the JIS C 8283 series of standards, the IEC 60320 series of standards or JIS C 8303; and - connectors that with the Ministerial Ordiance establishing Technical Requirements for Electrical Appliances and Materials (MEIT Ordinance No. 34 of 2013) and comply with the dimensions specified in the JIS C 8283 series of standards, JIS C 8303 or IEC 60309-2; see also 1.5.2.		N/A
Annex M	In M.1, replace the existing paragraph with the following: One of the two methods specified in this annex shall be applied. NOTE Method A specified in the annex is typical of analogue telephone network in Europe and Method B of those in North America.		N/A
Annex P	Replace the existing Annex P with the following:		N/A

JP Japan (H26) JP

Annex P

(normative)

Normative references

The following reference documents are indispensable for the application of this standard. If the date of the reference document is given, only that edition applies, and any newer edition and subsequent amendments do not apply. If the date of the reference document is not given, the latest edition including the amendments applies.

Further information on the reference documents, including how to obtain copies, can be found on the following internet sites:

http://www.jisc.go.jp/

http://www.iec.ch

http://www.iso.org

http://www.itu.int

JIS B 0205-2, ISO general purpose metric screw threads - Part2: General plan
NOTE Corresponding IS: **ISO 261**, ISO general purpose metric screw threads－General plan (IDT)

JIS B 0205-3, ISO general purpose metric screw threads - Part3 : Selected sizes for screws, bolts and nuts
NOTE Corresponding IS: **ISO 262**, ISO general purpose metric screw threads - Selected sizes for screws, bolts and nuts (IDT)

JIS C 0448, Coding of indicating devices and actuators by colours and supplementary means
NOTE Corresponding IS: **IEC 60073**, Basic and safety principles for man-machine interface, marking and identification - Coding principles for indicator devices and actuators (IDT)

JIS C 2134, Method for the determination of the proof and the comparative tracking indices of solid insulating materials
NOTE Corresponding IS: **IEC 60112**, Method for the determination of the proof and the comparative tracking indices of insulating materials (IDT)

JIS C 3215 (all parts), Specifications for particular types of winding wires
NOTE Corresponding IS: **IEC 60317** (all parts), Specifications for particular types of winding wires (IDT)

JIS C 3661-1:1998, Electrical test methods for electric cables - Part 1: Electrical tests for cables, cords and wires for voltages up to and including 450/750V
NOTE Corresponding IS: **IEC 60885-1**:1987, Electrical test methods for electric cables. Part 1: Electrical tests for cables, cords and wires for voltages up to and including 450/750 V (IDT)

JIS C 3662 (all parts), Polyvinyl chloride insulated cables of rated voltages up to and including 450/750V - Part 1 : General requirements
NOTE Corresponding IS: **IEC 60227** (all parts), Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V (MOD)

JIS C 3663 (all parts), Rubber insulated cables - Rated voltages up to and including 450/750 V
NOTE Corresponding IS: **IEC 60245** (all parts), Rubber insulated cables - Rated voltages up to and including 450/750 V (MOD)

JIS C 4003, Electrical insulation-Thermal evaluation and designation
NOTE Corresponding IS: **IEC 60085**:2004, Electrical insulation - Thermal classification (MOD)

JIS C 4526-1:2005, Switches for appliances - Part 1: General requirements
NOTE Corresponding IS: **IEC 61058-1**:2000, Switches for appliances - Part 1: General requirements (MOD)

JIS C 5101-14:2009, Fixed capacitors for use in electronic equipment - Part 14: Sectional specification: Fixed capacitors for electromagnetic interference suppression and connection to the supply mains
NOTE Corresponding IS: **IEC 60384-14**:2005, Fixed capacitors for use in electronic equipment - Part 14: Sectional specification: Fixed capacitors for electromagnetic interference suppression and connection to the supply mains (IDT)

JIS C 6065:2007 and Amendment 1:2009, Audio, video and similar electronic apparatus - Safety requirements
NOTE Corresponding IS: **IEC 60065**:2001, Audio, video and similar electronic apparatus - Safety requirements and Amendment 1:2005 (MOD)

JIS C 6802, Safety of laser products

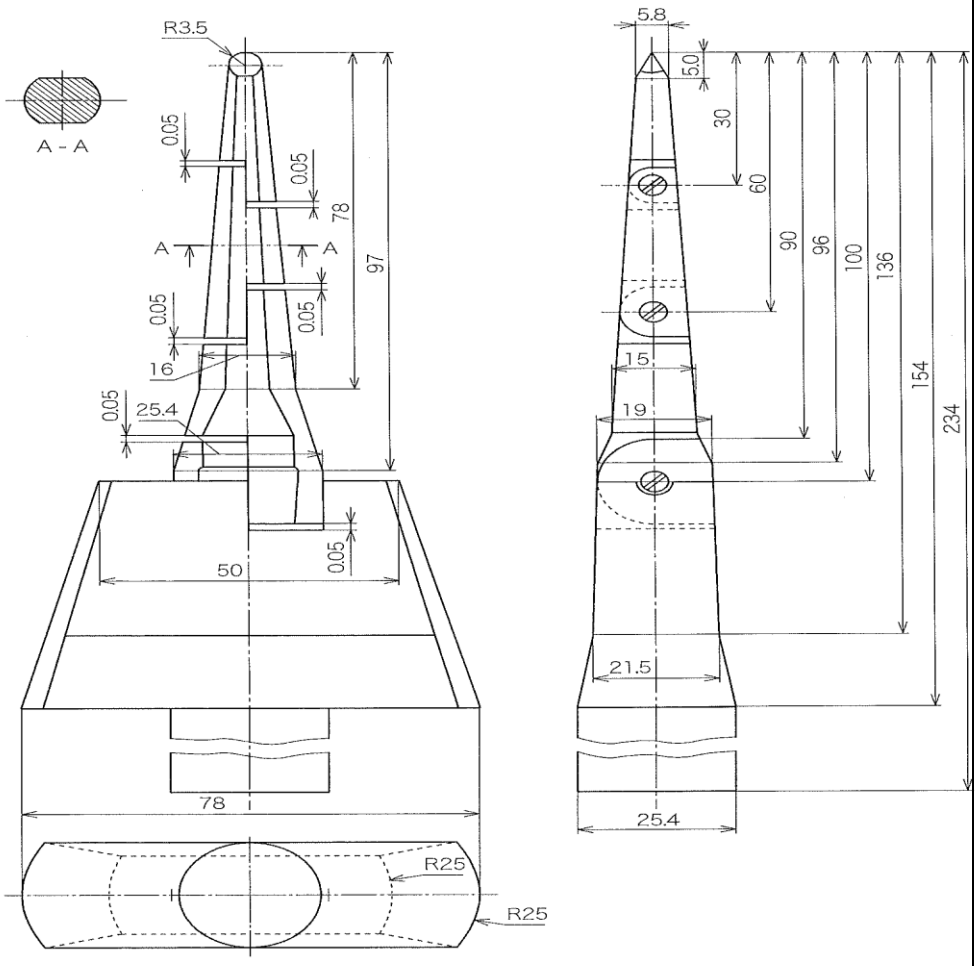
JIS C 6803, Safety of laser products-Safety of optical fiber communication systems

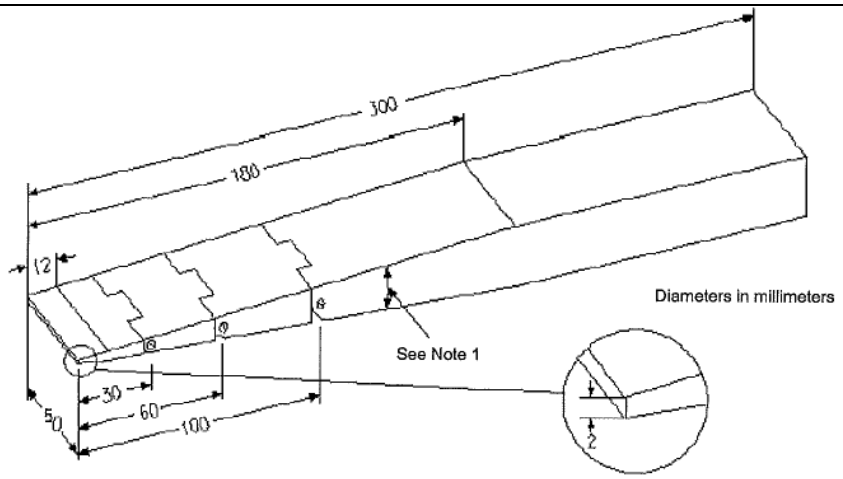
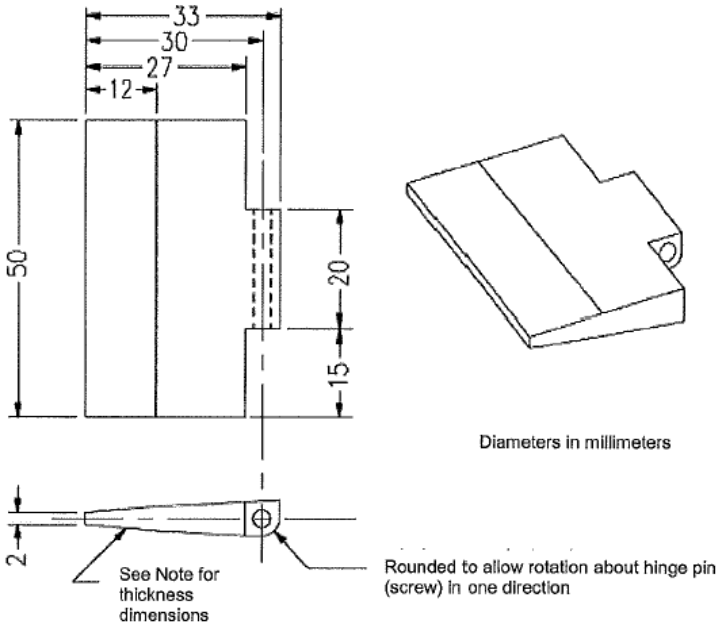
JIS C 6804, Safety of laser products-Safety of free space optical communication systems used for transmission of information

JP Japan (H26)			JP
Annex U.2.4	Replace the existing NOTE as NOTE1, add NOTE 2 as follows: NOTE 2 by taking into account environmental impact, "(for example, 1.1.1-trichloroethance)" described in the corresponding IEC standard was deleted.		N/A
Annex V.1	Replace "In 3.1.2 of IEC 60364-1" with "312 of JIS C 60364-1".		N/A
Annex W.1	Replace second and third sentence in the first paragraph with the following: This distinction between earthed and unearthed (floating) circuit is not the same as between CLASS I EQUIMENT, CLASS 0I EQUIPMENT and CLASS II EQUIPMENT. Floating circuits can exist in CLASS I EQUIPMENT or CLASS 0I EQUIPMENT and earthed circuits in CLASS II EQUIPMENT.		N/A
Annex AA	Replace figure AA.3 which correct the position of insulating metal sheet.		N/A
Annex JA	Add a new annex JA with the following contents. **Annex JA** (normative) Requirements for document shredding machines (see 1.7, 2.8.3, 3.4 and 4.4) Introduction This annex specifies the safety requirements for document shredding machines, except those of STATIONARY EQUIPMENT used by connecting directly to 3-phase AC MAINS SUPPLY of a voltage not the than 200V. Document shredding machines shall comply with the requirements of this annex in addition to other requirements specified in this standard, except those of STATIONARY EQUIPMENT used by connecting directly to three-phase AC MAINS SUPPLY of a voltage not less than 200V.		N/A

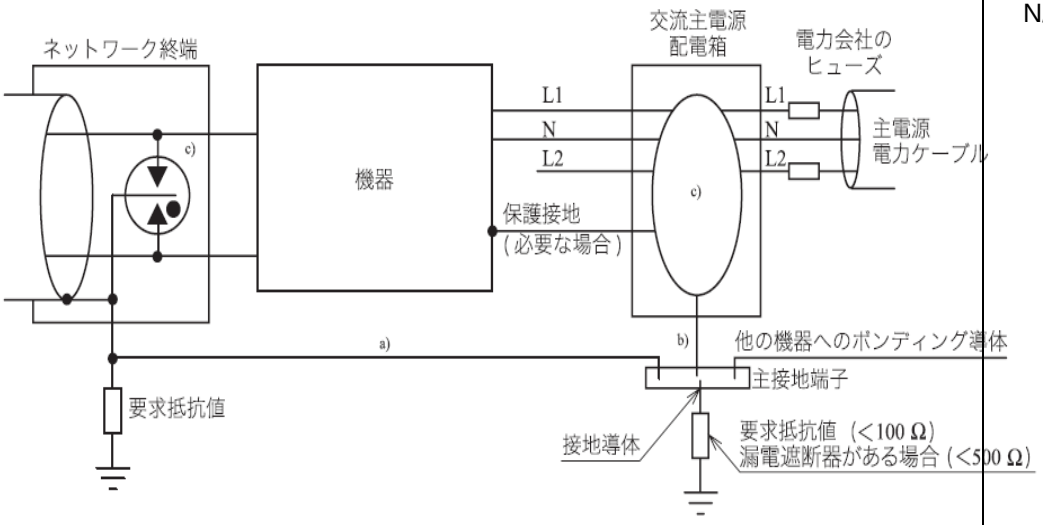
JP Japan (H26)			JP
JA.1	**Markings and instructions** In the easily visible part near to the slot for documents, by a method of clearly legible and permanent and by using easily understandable terms, document shredding machines shall have markings of the symbol ⚠ specified in 6.2.1 (general cautions) of JIS S 0101:2000, Graphical warning symbols for consumers, and also the following precautions for use: - that use by an infants/children may cause a hazard of injury etc.; - that a hand can be drawn into the mechanical section for shredding when touching the document-slot; - that clothing can be drawn into the mechanical section for shredding when touching the document-slot; - that hairs can be drawn into the mechanical section for shredding when touching the document-slot; - in case of equipment incorporating a commutator motor, that equipment may catch fire or explode by spraying of flammable gas.		N/A
JA.2	**Inadvertent reactivation** Any safety interlock that can be operated by means of the test finger, Figure JA.1, is considered to be likely to cause inadvertent reactivation of the hazard. Compliance is checked by inspection and, where necessary, by a test with the test finger, Figure JA.1		N/A
JA.3	**Disconnect switch** Document shredding machines shall incorporate an isolating switch complying with sub-clause 3.4.2 as the device disconnecting the power of hazardous moving parts. For this switch, two-position (single-use) switch or multi-position (multifunction) switch (e.g., slide switch) may be used. If two-position switch, the positions for “ON” and “OFF” shall be indicated in accordance with sub-clause 1.7.8. If multi-position switch, the position for “OFF” shall be indicated in accordance with sub-clause 1.7.8 and other positions shall be indicated with proper terms or symbols. Compliance is checked by inspection.		N/A

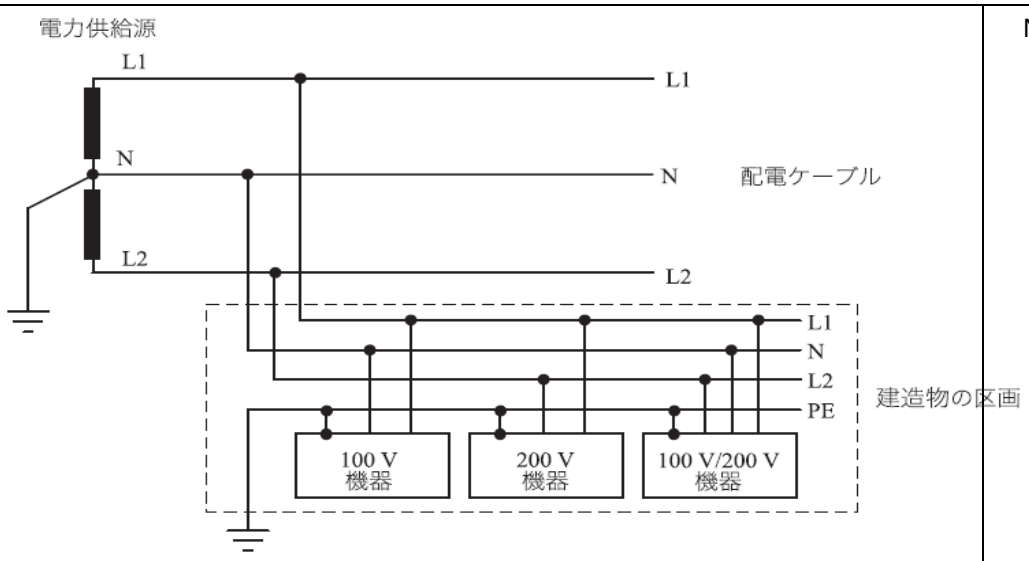
JP Japan (H26)			JP
JA.4	**Protection in operator access area** Any warning shall not be used instead of the structure for preventing access to hazardous moving parts. Document shredding machines shall comply with the following requirements. Insert the test finger, Figure JA.1, into all openings in MECHANICAL ENCLOSURES without applying appreciable force. It shall not be possible to touch hazardous moving parts with the test finger. This consideration applies to all sides of MECHANICAL ENCLOSURES when the equipment is mounted as intended . Before testing with the test finger, remove the parts detachable without a tool. Insert the wedge-probe, Figure JA.2, into the document-slot. And, against all directions of openings, if straight-cutting type, a force of 45 N shall apply to the probe, and 90 N if cross-cutting type. In this case, the weight of the probe is to be factored into the overall applied force. Before testing with the wedge-probe, remove the parts detachable without a tool. It shall not be possible to touch any hazardous moving parts, including the shredding roller or the mechanical section for shedding, with the probe.		N/A

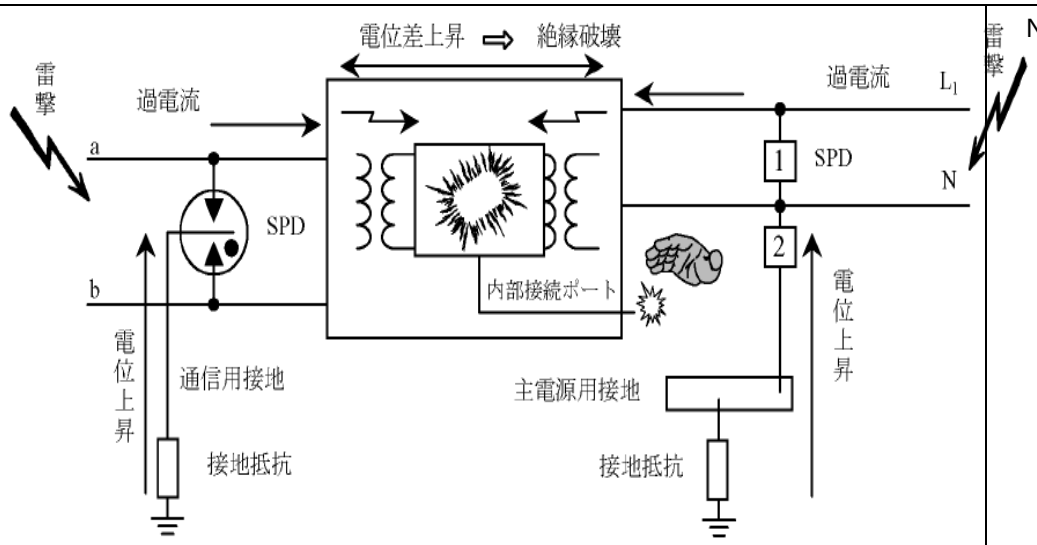
JP Japan (H26)		JP
Annex JA	 Figure JA.1 Test finger	N/A

JP Japan (H26)		JP
Annex JA	  Details of the tip of wedge Distance from the tip (mm) / Thickness of probe (mm) 0 / 2 12 / 4 180 / 24 NOTE 1 The thickness of the probe varies linearly, with slope changes at the respective points shown in the table. NOTE2 The allowable dimensional tolerance of the probe is +/- 0.127 mm. **Figure JA.2 Wedge-probe**	N/A

Annex JB	Add Annex JB as follows: **Annex JB** (informative) Current conditions Installation environment on overvoltages and overcurrents, and the measures (see NOTE 1 in Clause 6) Introduction This standard is based on "**ITU-T Recommendation K.11**:1993" to stipulate requirement for equipment on a premise to install in the environment where appropriate measures were taken for so that overvoltage more than peak 1.5kV does not hang to the apparatus. But in Japan due to environment is difficult to integrate with "**ITU-T Recommendation K.11**:1993", in here explain for desirable environment and show actions to be taken how to make a desirable setting environment.		N/A
JB.1	A desirable setting environment When lead electric wires in building for any kind service of metal wire, for overvoltage restraint and overcurrent restraint, it is desirable that be close to each other including grounding conductor. It is important to make it close each other especially the lead in point of power line, communication line and grounding conductor. In that case, attention is necessary for electromagnetic induction where occurred between a communication line and the power line which are not covered. It is desirable that set up main grounding terminal which close to lead in point of power line and communication line in building as much as possible. Due to minimize the surge current in building for all shielding conductor of cable which lead in building, it shall connected directly with main grounding terminal in lead in point via surge protection device (SPD) e.g. arrester and so on. It shall be considered corrosion measures in joint if necessary. It is desirable that SPD which set on communication line is close to lead in point toward the building as much as possible. Furthermore set the SPD near the main power line, and it may make the distance from SPD to a grounding conductor as short as possible. It is effective if use a short grounding conductor with low impedance for that decrease surge voltage between electric power system protection conductor and the communication line.		N/A

	Desirable setting environment for TT electric power system is as figure JB.1. Established SPD as that excessive potential difference does not occur between communication side and the electricity side, and recommend that ground wire of both are connected with a short conductor. Concerning the detail for recommend setting environment, see ITU-T Recommendation K.11:1993, K.21:1996, K.27:1996, K.31:1993 and K.66:2004.		N/A
	 Note: a) All bonding line to a main grounding terminal makes it as short as possible (Less than 1.5m in the place that danger of direct lightning is high). b) The connected line which from SPD to main grounding terminal is as short as possible (less 1.5m). c) Setting for SPD (omitted the detail). All SPD connected line is short as possible (less 0.5m). Figure JB.1 – Sample of desirable setting for TT electric power system of single phase three-wire type + neutral line (From **ITU-T Recommendation K.66:2004**)		N/A
JB.2	Situation and countermeasure of setting environment for overvoltage and overcurrent In Japan, TT type often adopted for electric power system. Typical example is as figure JB.2. For this TT type, on condition that it shall be an electric power system which does not wired with grounding conductor except neutral line, and it shall be connected with grounding terminal which have an electrically independent different from this grounding terminal of neutral line by user for equipment which need to connect with ground.		N/A

	 Grounded electric wire and grounded equipment in particularly Figure JB.2 – Example of three-wire type TT electric power system		N/A
	But as thing are stand, there are a lot of cases that an outlet is not prepared with the grounding terminal which is appropriate in the setting place of the equipment. On the other hand, grounding resistance value of SPD where set at lead-in point of communication line sometime is not enough low, it make that dielectric breakdown was occurred due to the voltage that a thunder surge current evoked for grounding resistance which flow into the communication line and drift to the ground through SPD. The same result is expected that grounding resistance value is not enough low too if set SPD on electric power system. This status is as figure JB.3. As figure JB.1, it can decrease effectively by connecting both with the conductor of the low resistance value when excessive potential difference occurred in internal equipment.		N/A

	 Figure JB.3 - Insufficient grounding and setting environment of bonding (From **ITU-T Recommendation K.66:2004**)		N/A
	It is desirable that provide the information for set environment which appropriate measures were given based on ITU-T RecommendationK.11:1993 when perform design and sale network connected equipment.		N/A
KR Republic of Korea			**KR**
1.5.101	Addition Plugs for the connection of the apparatus to the supply mains shall comply with the Korean requirement (KSC 8305).		N/A
8 EMC	Addition The apparatus shall comply with the relevant CISPR standards		P

SE Sweden			**SE**
1.2.13.14	In **Norway** and **Sweden**, for requirements see 1.7.2.1 and 7.3 of this annex.		N/A
1.5.1	Sweden (Ordinance 1990:944) Add the following: NOTE In Sweden, switches containing mercury are not permitted.		P
1.5.7.1	In **Finland, Norway** and **Sweden**, resistors bridging BASIC INSULATION in CLASS I PLUGGABLE EQUIPMENT TYPE A must comply with the requirements in 1.5.7.1. In addition when a single resistor is used, the resistor must withstand the resistor test in 1.5.7.2.		N/A
1.5.9.4	In Finland, Norway and Sweden, the third dashed sentence is applicable only to equipment as defined in 6.1.2.2 of this annex.		N/A
1.7.2.1	In Finland, Norway and Sweden, CLASS I PLUGGABLE EQUIPMENT TYPE A intended for connection to other equipment or a network shall, if safety relies on connection to protective earth or if surge suppressors are connected between the network terminals and accessible parts, have a marking stating that the equipment must be connected to an earthed mains socket-outlet.		N/A
	The marking text in the applicable countries shall be as follows: In Finland: "Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan" In Norway: “Apparatet må tilkoples jordet stikkontakt” In Sweden: “Apparaten skall anslutas till jordat uttag”		N/A

SE Sweden			**SE**
1.7.2	In **Norway** and **Sweden**, the screen of the cable distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation need to be isolated from the screen of a cable distribution system. It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by e.g. a retailer. The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in: "Equipment connected to the protective earthing of the building installation through the mains connection or through other equipment with a connection to protective earthing – and to a cable distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a cable distribution system has therefore to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)." NOTE In Norway, due to regulation for installations of cable distribution systems, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min. Translation to Norwegian (the Swedish text will also be accepted in Norway): "Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel- TV nettet." Translation to Swedish: "Utrustning som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät galvanisk isolator finnas mellan utrustningen och kabel-TV nätet."		N/A
2.3.2	In Finland, Norway and Sweden there are additional requirements for the insulation. See 6.1.2.1 and 6.1.2.2 of this annex.		P

SE Sweden			**SE**
2.10.5.13	In Finland, Norway and Sweden, there are additional requirements for the insulation, see 6.1.2.1 and 6.1.2.2 of this annex.		P
5.1.7.1	In Finland, Norway and Sweden TOUCH CURRENT measurement results exceeding 3,5 mA r.m.s. are permitted only for the following equipment: STATIONARY PLUGGABLE EQUIPMENT TYPE A that is intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, for example, in a telecommunication centre; and has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR; and is provided with instructions for the installation of that conductor by a SERVICE PERSON; STATIONARY PLUGGABLE EQUIPMENT TYPE B; STATIONARY PERMANENTLY CONNECTED EQUIPMENT.		P
6.1.2.1	In Finland, Norway and Sweden, add the following text between the first and second paragraph of the compliance clause: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either - two layers of thin sheet material, each of which shall pass the electric strength test below, or - one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that CLEARANCES and CREEPAGE DISTANCES do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition - passes the tests and inspection criteria of 2.10.11 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 2.10.10 shall be performed using 1,5 kV), and - is subject to ROUTINE TESTING for electric strength during manufacturing, using a test voltage of 1,5 kV. It is permitted to bridge this insulation with a capacitor complying with EN 132400:1994, subclass Y2.		N/A

SE Sweden			**SE**
	A capacitor classified Y3 according to EN 132400:1994, may bridge this insulation under the following conditions: - the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 132400, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in EN 60950-1:2006, 6.2.2.1; - the additional testing shall be performed on all the test specimens as described in EN 132400; - the impulse test of 2,5 kV is to be performed before the endurance test in EN 132400, in the sequence of tests as described in EN 132400.		N/A
6.1.2.2	In Finland, Norway and Sweden, the exclusions are applicable for PERMANENTLY CONNECTED EQUIPMENT, PLUGGABLE EQUIPMENT TYPE B and equipment intended to be used in a RESTRICTED ACCESS LOCATION where equipotential bonding has been applied, e.g. in a telecommunication centre, and which has provision for a permanently connected PROTECTIVE EARTHING CONDUCTOR and is provided with instructions for the installation of that conductor by a SERVICE PERSON.		P
7.2	In Finland, Norway and Sweden, for requirements see 6.1.2.1 and 6.1.2.2 of this annex. The term TELECOMMUNICATION NETWORK in 6.1.2 being replaced by the term CABLE DISTRIBUTION SYSTEM.		N/A
7.3	In Norway and Sweden, there are many buildings where the screen of the coaxial cable is normally not connected to the earth in the building installation.		N/A

UA Ukraine			**UA**
1.4.5	In Ukraine the NOMINAL VOLTAGE is 220 V for monophase or 380 V for three-phase supply.		N/A
1.5.8	In Ukraine the components connected between phase and earthing or between phase and neutral terminal shall be calculated for the voltage between phases.		N/A
1.7.2	In Ukraine for the APPARATUS of I CLASS the necessity of its obligatory earthing shall be indicated in the manuals.		N/A
2.3.3	In Ukraine the method b) is not used.		N/A
6.2.2	In Ukraine the both tests in 6.2.2.1 and 6.2.2.2 are applied.		N/A
6.2.2.1	In Ukraine in 6.2.1 a) is used Uc = 3,5 kV.		N/A
6.2.2.2	In Ukraine in 6.2.1 a) is used 3,0 kV for telephones and headsets and 2,5 kV - for other equipment and in 6.2.1 b) and c) is used 1,5 kV.		N/A
Annex N	In Ukraine in 6.2.1 a) is used 3,0 kV for telephones and headsets and 2,5 kV - for other equipment, and in 6.2.1 b) and c) is used 1,5 kV.		N/A

US United States of America			**US**
SPECIAL NATIONAL CONDITIONS BASED ON FEDERAL REGULATIONS			—
1.1.1	All equipment is to be designed to allow installation in accordance with the National Electrical Code (NEC), ANSI/NFPA 70, and when applicable, the National Electrical Safety Code, IEEE C2.		N/A
	Also, unless markedor otherwise identified, installation is allowed per the Standard for the Protection of Electronic Computer/Data-Processing Equipment, ANSI/NFPA 75.		N/A
1.1.2	Baby monitors are required to additionally comply with ASTM F2951, Consumer Safety Specification for Baby Monitors.		N/A
1.4.14	For Pluggable Equipment Type A, the protection in the installation is assumed to be 20A.		N/A
1.5.5	For lengths exceeding 3.05 m, external interconnecting flexible cord and cable assemblies are required to be a suitable cable type specified in the NEC.		N/A
	For lengths 3.05 m or less, external interconnecting flexible cord and cable assemblies that are not types specified in the NEC are required to have special construction features and identification markings.		N/A
1.7.1	Equipment for use on a.c. mains supply systems with a neutral and more than one phase conductor (e.g. 120/240 V, 3-wire) require a special marking format for electrical ratings.		N/A
	A voltage rating that exceeds an attachment plug cap rating is only permitted if it does not exceed the extreme operating conditions in Table 2 of CAN/CSA C22.2 No. 235, and if it is part of a range that extends into the Table 2 "Normal Operating Conditions." Likewise, a voltage rating shall not be lower than the specified "Normal Operating Conditions," unless it is part of a range that extends into the "Normal Operating Conditions."		N/A
1.7.7	Wiring terminals intended to supply Class 2 outputs in accordance with the NEC or CEC Part 1 shall be marked with the voltage rating and “Class 2” or equivalent.		N/A
	- Marking is located adjacent to the terminals		N/A
	- Marking is visible during wiring		N/A

US United States of America			US
2.5	Fuse providing Class 2, Limited Power Source, or TNV current limiting is not operator-accessible unless it is not interchangeable		N/A
2.6	Equipment with isolated ground (earthing) receptacles are required to comply with NEC 250.146(D) and CEC 10-112 and 10-906(8).		N/A
2.7.1	Suitable NEC branch circuit protection rated at the maximum circuit rating is required for all standard supply outlets and receptacles (such as supplied in power distribution units) if the supply branch circuit protection is not suitable. Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.		N/A
	Power distribution transformers distributing power at 100 volts or more, and rated 10 kVA or more, require special transformer overcurrent protection.		N/A
3.2	Wiring methods (terminals, leads, etc.) used for the connection of the equipment to the mains is in accordance with the NEC/CEC		N/A
3.2.1	Attachment plugs of power supply cords are rated not less than 125 percent of the rated current of the equipment		N/A
3.2.1.2	Equipment connected to a centralized d.c. power system, and having one pole of the DC mains input terminal connected to the main protective earthing terminal in the equipment, is required to comply with special earthing, wiring, marking and installation instruction requirements.		N/A
3.2.3	Permanent connection of equipment to the mains supply by a power supply cord is not permitted, except for certain equipment, such as ATMs.		N/A
3.2.5	Power supply cords are required to be no longer than 4.5 m in length.		N/A
	Minimum cord length is required to be 1.5 m, with certain constructions such as external power supplies allowed to consider both input and output cord lengths into the requirement.		N/A
	Flexible power supply cords are required to be compatible with Article 400 of the NEC, and Tables 11 and 12 of the CEC.		N/A
3.2.9	Permanently connected equipment must have a suitable wiring compartment and wire bending space.		N/A
3.3.3	Wire binding screws are not permitted to attach conductors larger than 10 AWG (5.3 mm).		N/A

US United States of America			**US**
3.3.4	Terminals for permanent wiring, including protective earthing terminals, are suitable for Canadian/US wire gauge sizes, are		N/A
	- rated 125 per cent of the equipment rating, and		N/A
	- are specially marked when specified (1.7.7)		N/A
3.3.5	Revise first column of Table 3E to “Smaller of the rated current of the equipment or the protective current rating of the circuit under consideration”		N/A
3.4.2	Motor control devices are provided for cord-connected equipment with a motor if the equipment is rated more than 12 A,		N/A
	- or if the motor has a nominal voltage rating greater than 120 V		N/A
	- or is rated more than 1/3 hp (locked rotor current over 43 A)		N/A
3.4.8	Vertically-mounted disconnect switches and circuit breakers are required to have the "on" position indicated by the handle in the up position.		N/A
3.4.11	For computer room applications, equipment with battery systems capable of supplying 750 VA for five minutes are required to have a battery disconnect means that may be connected to the computer room remote power-off circuit.		N/A
4.3.12	The maximum quantity of flammable liquid stored in equipment is required to comply with NFPA 30.		N/A
4.3.13.5.1	Equipment with lasers is required to meet the U.S. Code of Federal Regulations 21 CFR 1040 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A
4.7	For computer room applications, automated information storage systems with combustible media greater than 0.76 m3 (27 cu ft) are required to have a provision for connection of either automatic sprinklers or a gaseous agent extinguishing system with an extended discharge.		N/A
4.7.3.1	For computer room applications, enclosures with combustible material measuring greater than 0.9 m2 (10 sq ft) or a single dimension greater than 1.8 m (6 ft) are required to have a flame spread rating of 50 or less. For other applications, enclosures with the same dimensions require a flame spread rating of 200 or less.		N/A

US United States of America			**US**
	For other applications, enclosures with the same dimensions require a flame spread rating of 200 or less.		N/A
4.7.3.1	Non-metallic enclosures of equipment for use in spaces used for environmental air (plenums) are required to comply with UL 2043.		N/A
Annex H	Equipment that produces ionizing radiation is required to comply with the U.S. Code of Federal Regulations, 21 CFR 1020 (and the Canadian Radiation Emitting Devices Act, REDR C1370).		N/A
OTHER NATIONAL DIFFERENCES			—
1.5.1	Some components and materials associated with the risk of fire, electric shock, or personal injury are required to have component or material ratings in accordance with the applicable national (U.S. and Canadian) component or material requirements. These components include: attachment plugs, battery packs (rechargeable type, used with transportable equipment), cathode ray tubes, circuit breakers, communication circuit accessories, connectors (used for current interruption of non-LPS circuits), cord sets and power supply cords, direct plug-in equipment, enclosures (outdoor), flexible cords and cables, fuses (branch circuit), fuseholders, ground-fault current interrupters, industrial control equipment, insulating tape, interconnecting cables, lampholders, limit controls, printed wiring, protectors for communications circuits, receptacles, solid state controls, supplementary protectors, switches (including interlock switches), thermal cutoffs, thermostats, (multi-layer) transformer winding wire, transient voltage surge suppressors, tubing, wire connectors, and wire and cables.		N/A
1.6.1.2	A circuit for connection to the DC Mains Supply is classified as either a SELV Circuit, TNV-2 Circuit or Hazardous Voltage Circuit depending on the maximum operating voltage of the supply.		N/A
	This maximum operating voltage it to include consideration of the battery charging “Float voltage” associated with the intended supply system, regardless of the marked power rating of the equipment.		N/A

US United States of America			US
2.3.1	For TNV-2 and TNV-3 circuits with other than ringing signals and with voltages exceeding 42.4 Vpeak or 60 Vd.c., the max. acceptable current through a 2000 ohm resistor (or greater) connected across the voltage source with other loads disconnected is 7.1 mA peak or 30 mA d.c. under normal operating conditions.		N/A
2.3.2.1	In the event of a single fault between TNV and SELV circuits, the limits of 2.2.3 apply to SELV Circuits and accessible conductive parts.		N/A
2.6.2	Equipment with functional earthing is required to be marked with the functional earthing symbol (IEC 60417-6092).		N/A
2.6.3.4	Protective bonding conductors of non-standard protective bonding constructions (e.g., printed circuit traces) may be subjected to the additional limited short circuit test conditions specified.		N/A
4.2.8.1	Enclosures around CRTs with a face diameter of 160 mm or more are required to reduce the risk of injury due to the implosion of the CRT.		N/A
4.3.2	Equipment with handles is required to comply with special loading tests.		N/A
5.1.8.3	Equipment intended to receive telecommunication ringing signals is required to comply with a special touch current measurement tests.		N/A
5.3.7	Internal (e.g., card cage) SELV circuit connectors and printed wiring board connectors that are accessible to the operator and that deliver power are to be overloaded.		N/A
	During abnormal operating testing, if a circuit is interrupted by the opening of a component, the test shall be repeated twice (three tests total) using new components as necessary.		N/A
6.4	Equipment intended for connection to telecommunication network outside plant cable is protected against overvoltage from power line crosses in accordance with 6.4 and Annex NAC		N/A
Annex EE	UL articulated accessibility probe (Fig EE.3) required for assessing accessibility to document/media shredders instead of the Figure 2A test finger.		N/A
Annex M.2	Continuous ringing signals up to 16 mA only are permitted if the equipment is subjected to special installation and performance restrictions.		N/A

US United States of America			**US**
Annex NAD	Equipment connected to a telecommunication and cable distribution networks and supplied with an earphone intended to be held against, or in the ear is required to comply with special acoustic pressure requirements.		N/A

Notes: Before placing the products in the different countries, the manufacturer must ensure that:

1. Operating Instructions, Ratings Labels and Warnings Labels written in an Accepted or Official Language of the county in question.
2. The equipment complies with the National Standards and/or Electrical Codes of the country in question.

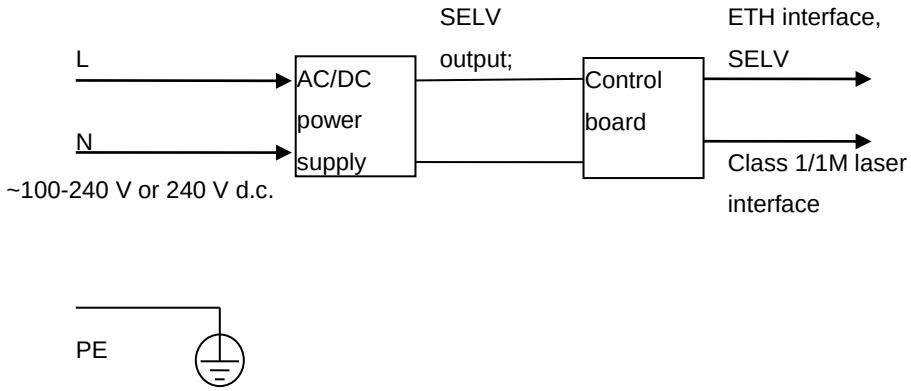
Attachment No. 3

System Diagram

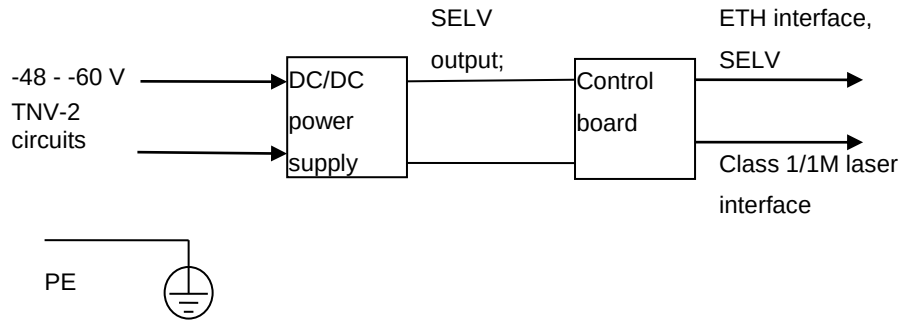
Attachment contains

Cover page:	1 page
System diagram:	1 page
Total:	2 pages

For AC/HVDC input:



For DC input:



Attachment No. 4

Photographs

Attachment contains

(Total 43 Pages including this Cover Page)

Supplement file name	Description
Photo-01	External view- Front, top, right (AC and HVDC input)
Photo-02	External view- Rear, bottom and left (AC and HVDC input)
Photo-03	External view- Front, top, right (DC input)
Photo-04	Protective earthed terminal
Photo-05	Warning label
Photo-06	TMB1PIU
Photo-07	VAPEL PSU for AC/HVDC input
Photo-08	GREATWALL PSU for AC/HVDC input
Photo-09	TMB1APIU
Photo-10	TMK2FAN
Photo-11	TMK2UXCL
Photo-12	TMB1LDCD
Photo-13	TMB1LDX
Photo-14	TNF1SP3DA
Photo-15	TMB1EMS10
Photo-16	TMK1UNS5
Photo-17	TMK1GTA
Photo-18	TMK1MDCA
Photo-19	TMB1LDCA/TMB1LTX

Photo-20	TNW1AT8
Photo-21	TNF2ELOM
Photo-22	TNF2LDX
Photo-23	TNF2LQM2
Photo-24	TNW1DXM
Photo-25	TNW1FXSO12
Photo-26	TMB1ELOM
Photo-27	TMB1LDC
Photo-28	TMK1SLNO
Photo-29	TMB1SL41Q
Photo-30	TMB1SL16S
Photo-31	TMK1EX10
Photo-32	TMK1TDC
Photo-33	TMK1SL64S
Photo-34	TMK1SL16Q
Photo-35	TMB1SL41O
Photo-36	TMB1EGS4
Photo-37	TMB1EFS8
Photo-38	TMK1TTA
Photo-39	TMK1UNQ2
Photo-40	TNF1TSPB
Photo-41	TNW1PF4E8
Photo-42	TNF1AUX
Photo-43	TMB2SBM3
Photo-44	TNF2OBU01/01JP
Photo-45	TNF2OBU02
Photo-46	TNF1OPM801/01JP
Photo-47	TNF1ST2/ ST2JP
Photo-48	TNF1AST401/401JP
Photo-49	TMB1DAP
Photo-50	TMB1OLP
Photo-51	TNF1ITL06/08/06C/08C/06JP

Photo-52	TMB1AST201
Photo-53	TNF1WSMD401/401JP
Photo-54	TNF1WSMD9XF
Photo-55	TNF1DAP
Photo-56	TNF1SCS01/02
Photo-57	TNF1DFIU01/01JP /02/03/04
Photo-58	TNF1EMR410/411/412/413/414/415/416/417/418/419
Photo-59	TNF1EMR801/801JP/802/802JP/803/803JP/804/804JP/805/805JP
Photo-60	TNF1EMR2M02
Photo-61	TNF1MR1M01/02
Photo-62	TNF1MR2M01/02
Photo-63	TNF1MR401/402/410/4S01/4S02/4S03/410JP/411/412/413/414/415/416/417/418/419
Photo-64	TNF1MR801/801JP/802/802JP/803/803JP/804/804JP/805/805JP/806/807/808/809/ 810/811/812/822/823
Photo-65	TNF1MD801/8M01
Photo-66	TNF1MD8S01
Photo-67	TNF1MD16M01
Photo-68	TNF1DMD2M01/ SM01/ M02
Photo-69	TNF1SBM1M03
Photo-70	TNF1SBM2M01/02/03/04
Photo-71	TNF1SBM401/401JP/402/402JP/403/404
Photo-72	TNF1SBM801/803/803JP/804/804JP/805/806/811/812
Photo-73	TNF1MB1/B1JP
Photo-74	TNF1X4001/4001JP/ TNF1X40JP/40/TNF1X40-1
Photo-75	TNF1FIU01/01JP/03
Photo-76	TNF2FIU01
Photo-77	TNF1MR1SM01/02
Photo-78	TNW1DIO
Photo-79	TNW1PL1
Photo-80	TNF1LDCA

Photo-01 External view- Front, top, right (AC and HVDC input)

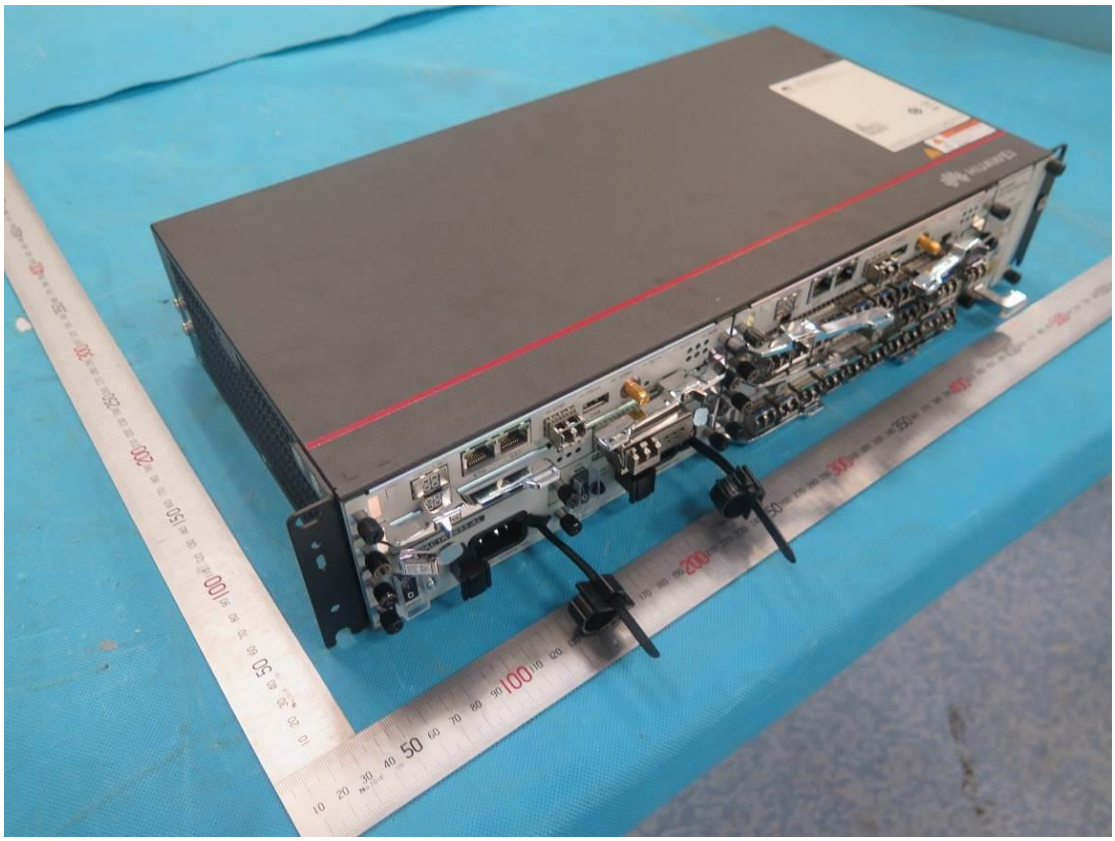


Photo-02 External view- Rear, bottom and left (AC and HVDC input)

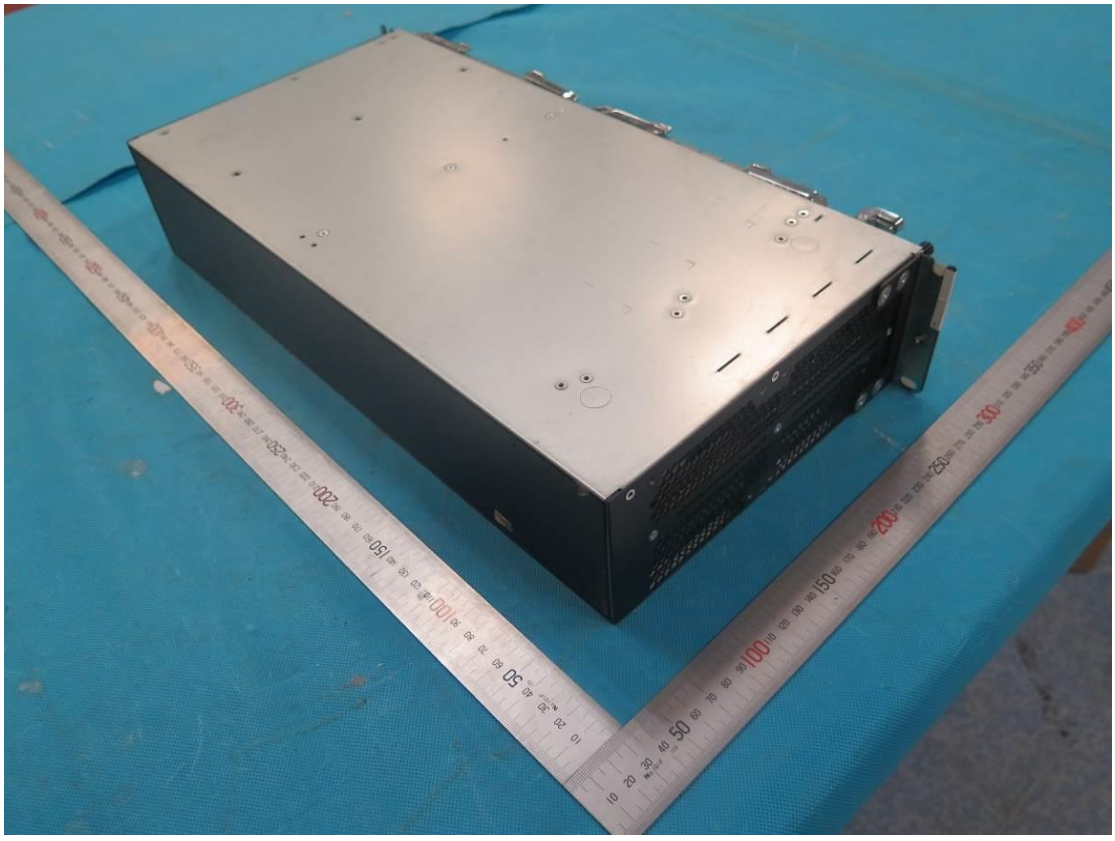


Photo-03 External view- Front, top, right (DC input)

Photo-04 Protective earthed terminal

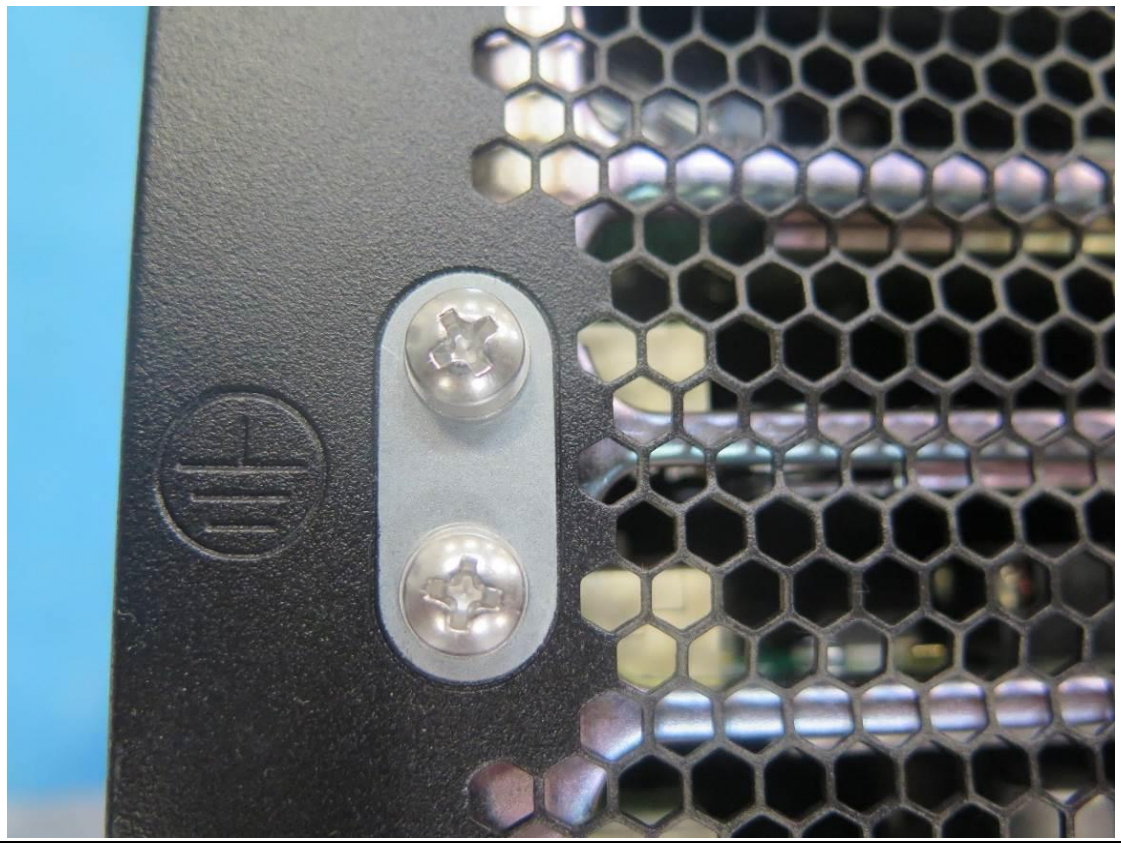


Photo-05 Warning label

Photo-06 TMB1PIU

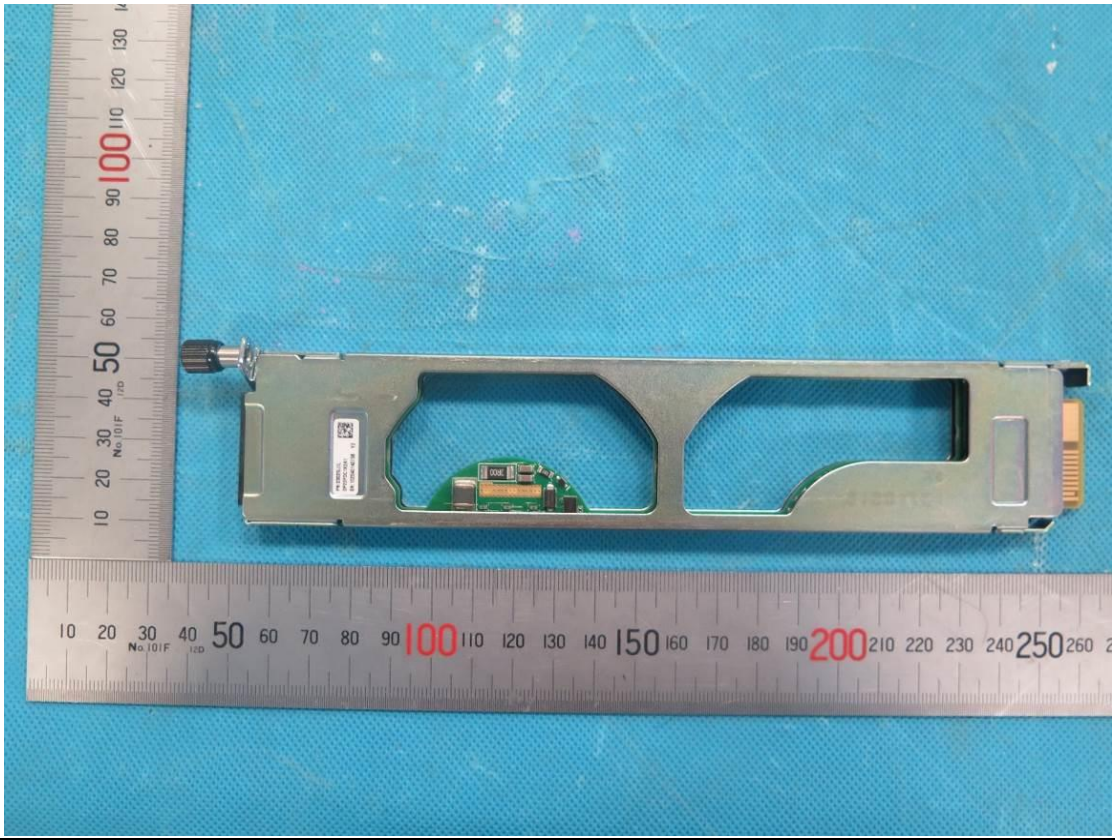


Photo-07 VAPEL PSU for AC/HVDC input

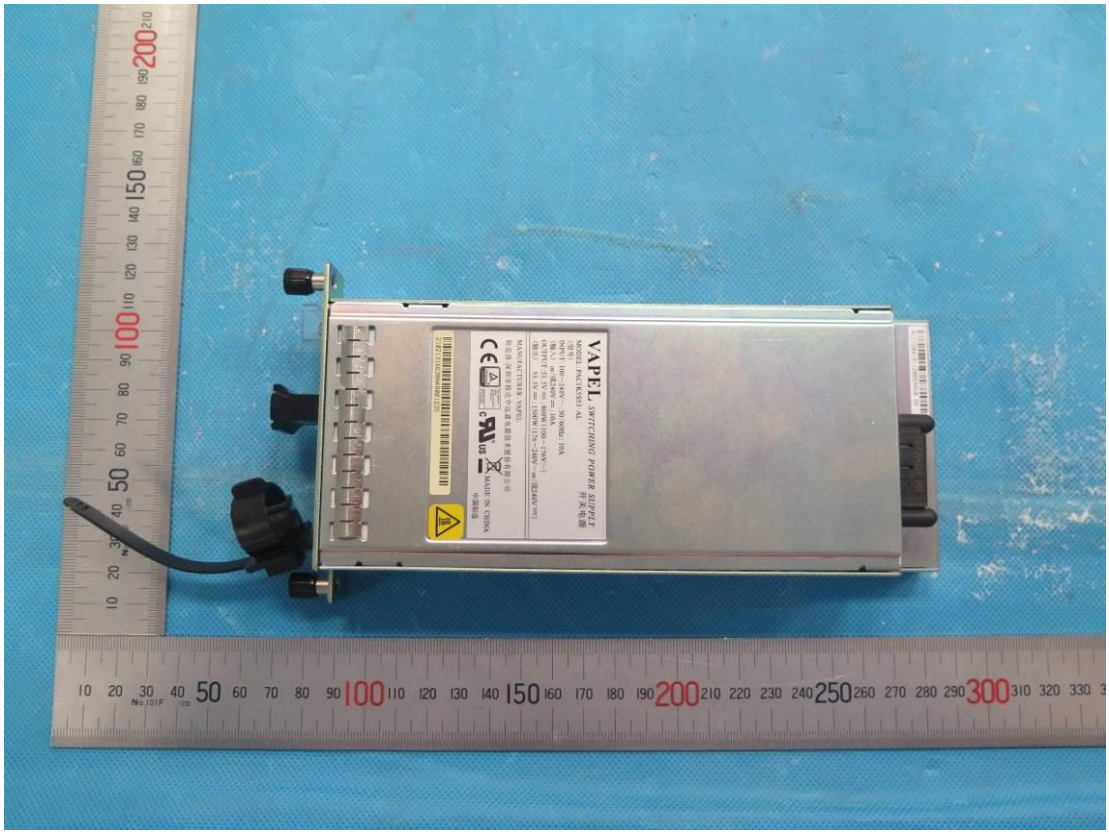


Photo-08 GREATWALL PSU for AC/HVDC input

Photo-09 TMB1APIU

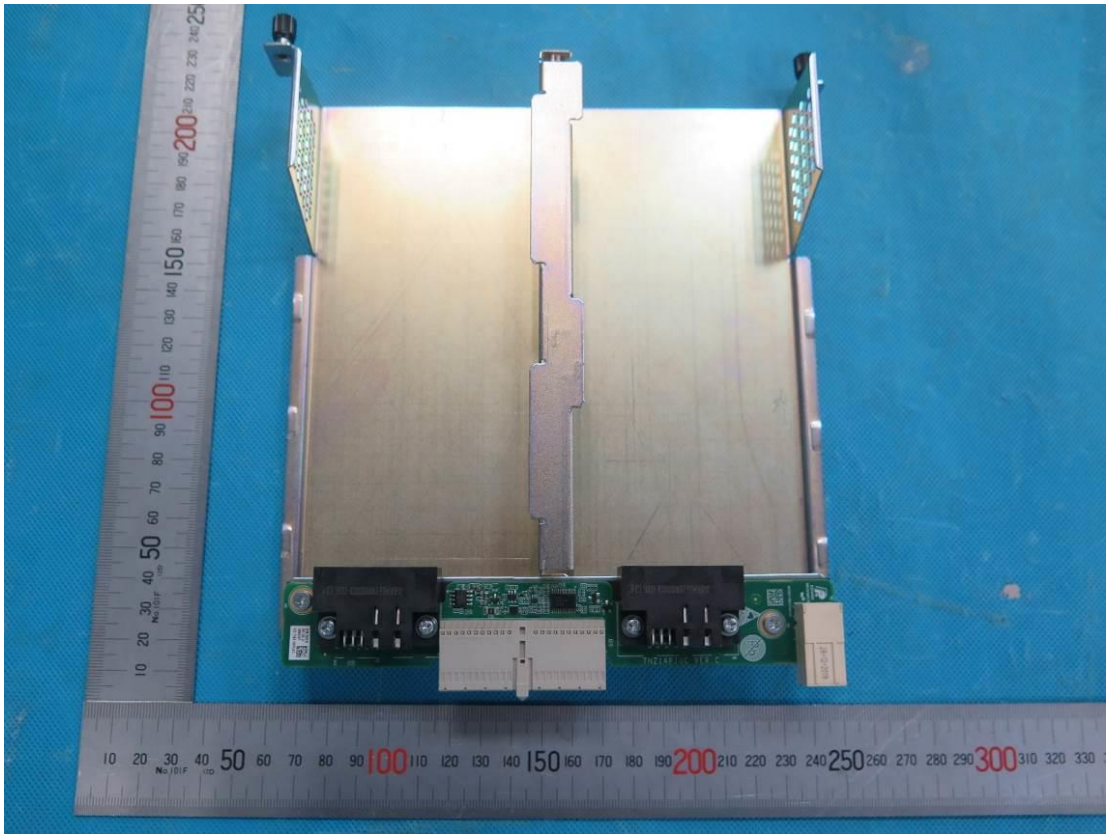


Photo-10 TMK2FAN

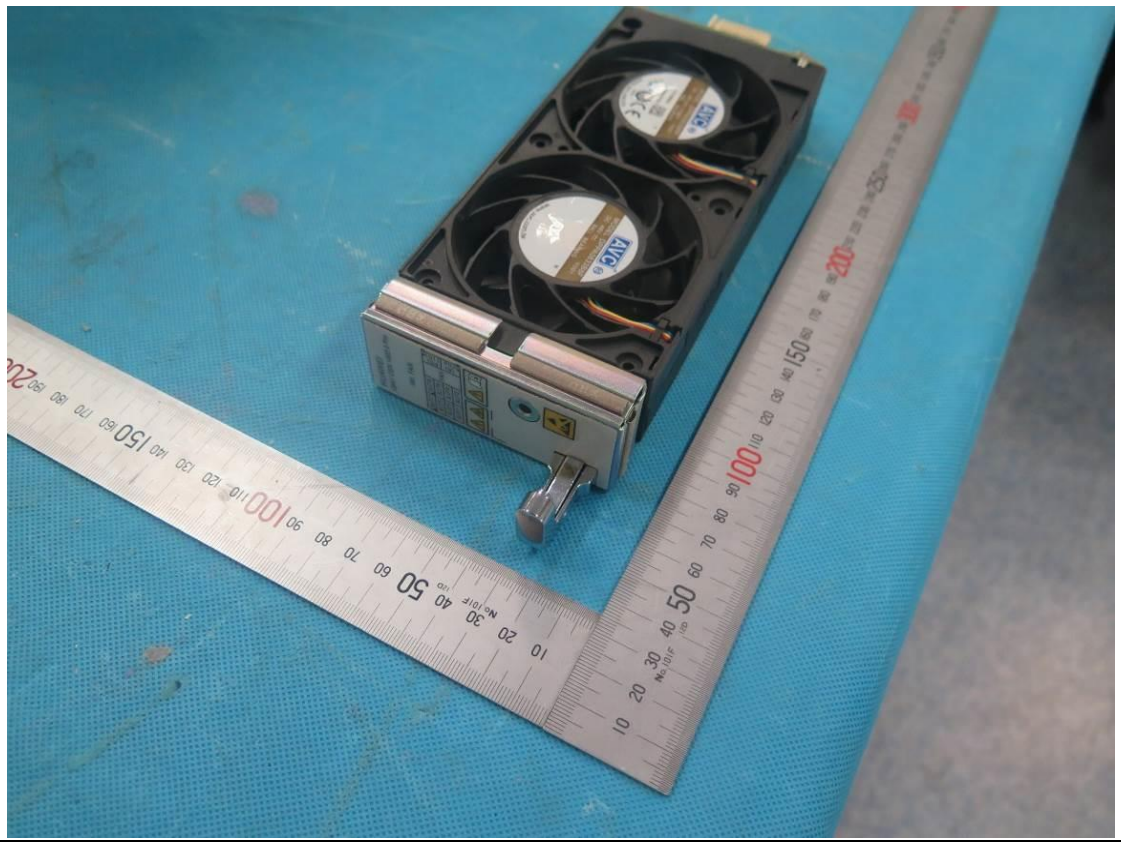


Photo-11 TMK2UXCL

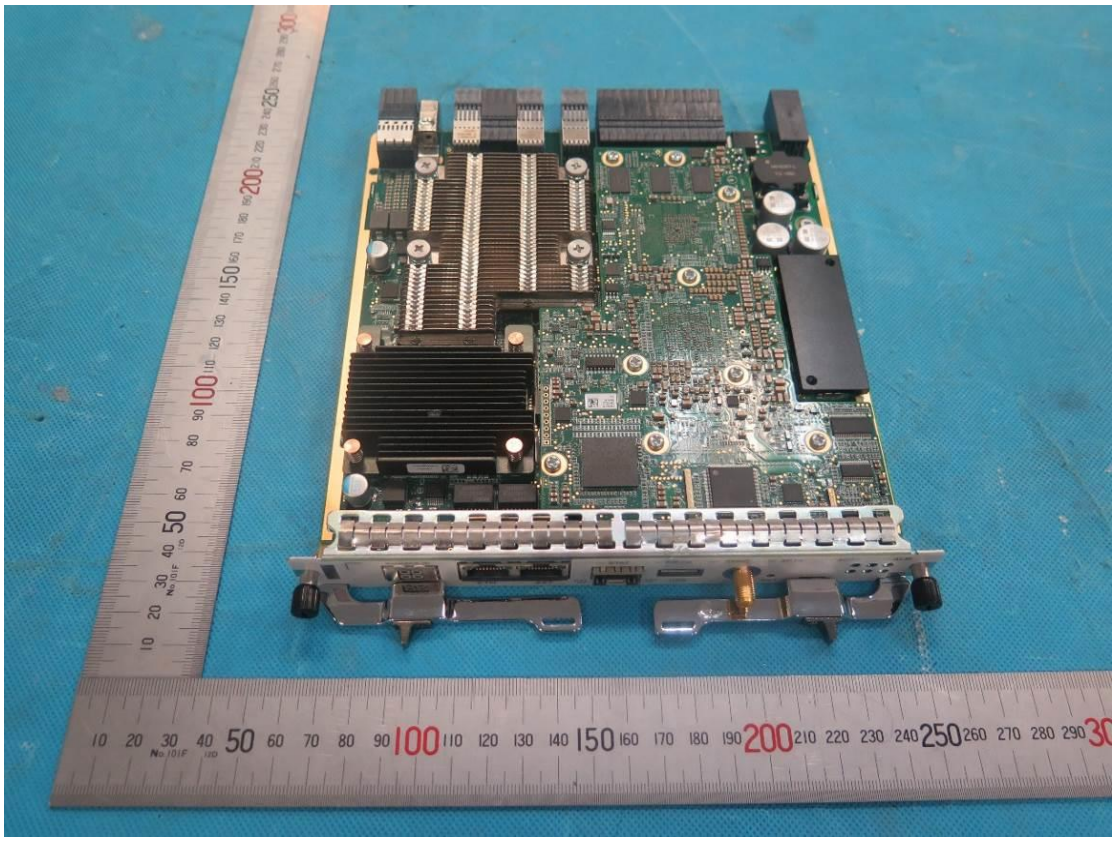


Photo-12 TMB1LDCD

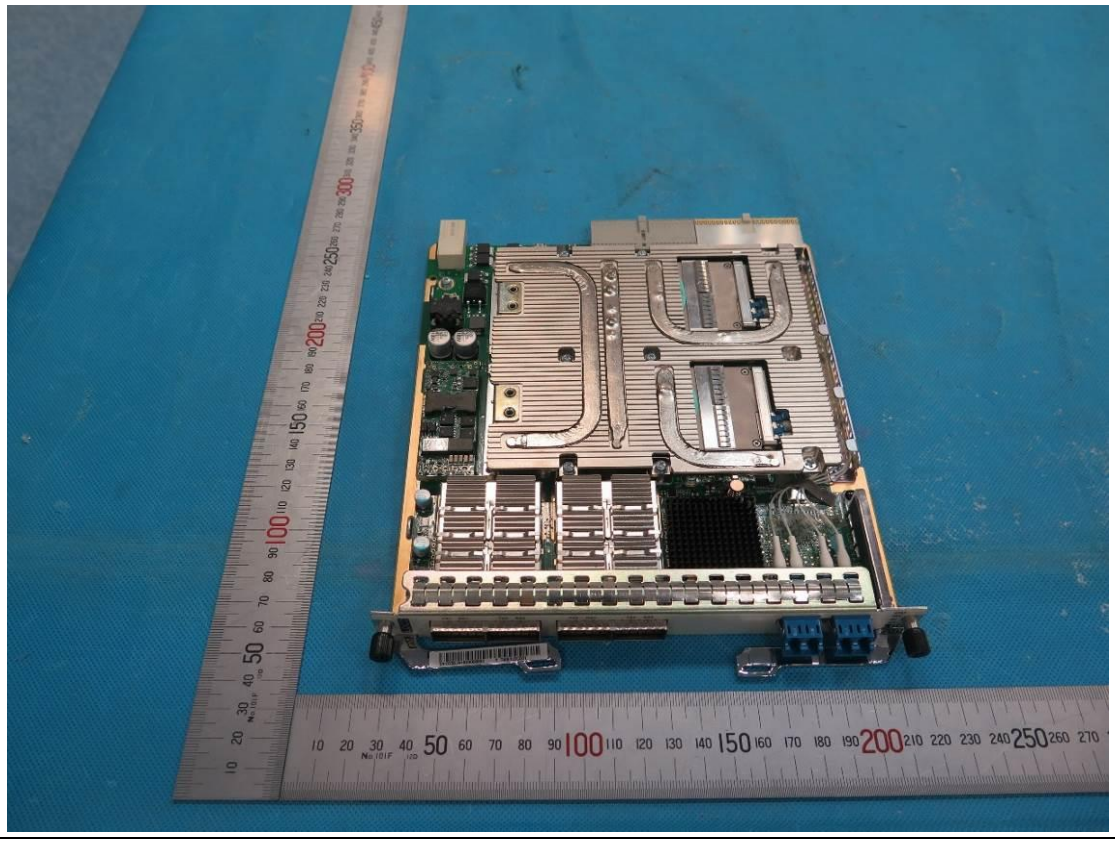


Photo-13 TMB1LDX

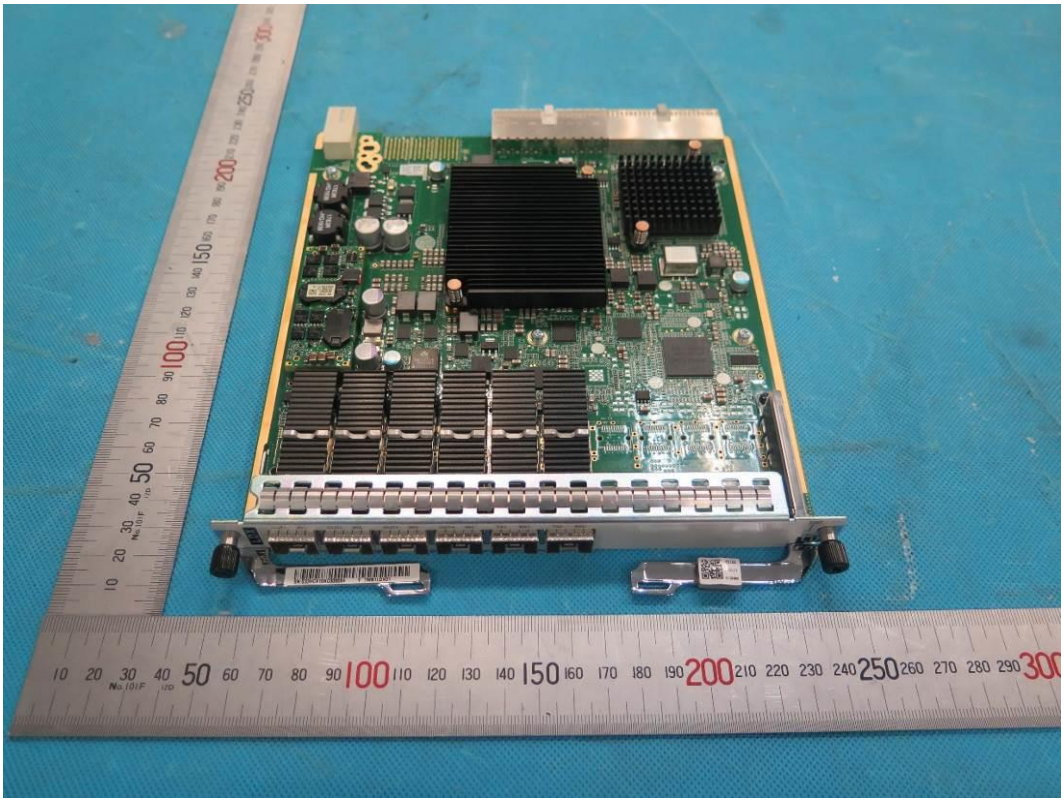


Photo-14 TNF1SP3DA

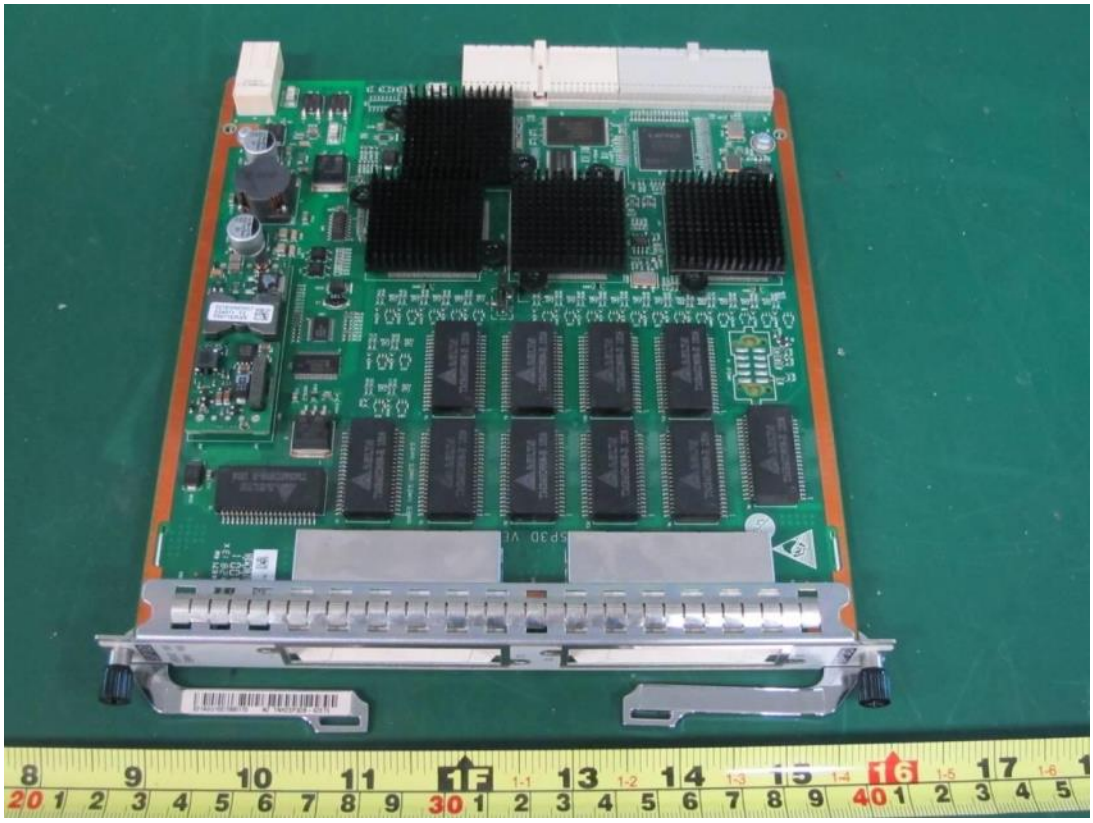


Photo-15 TMB1EMS10

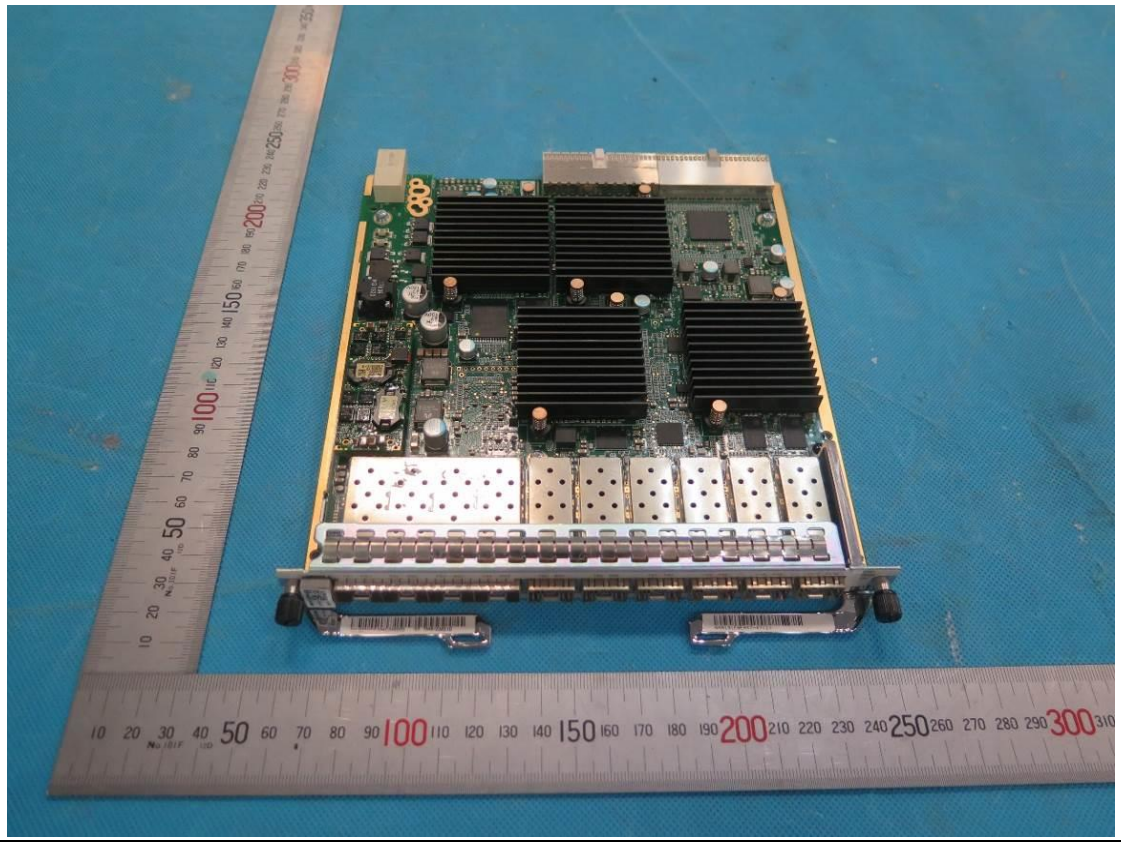


Photo-16 TMK1UNS5

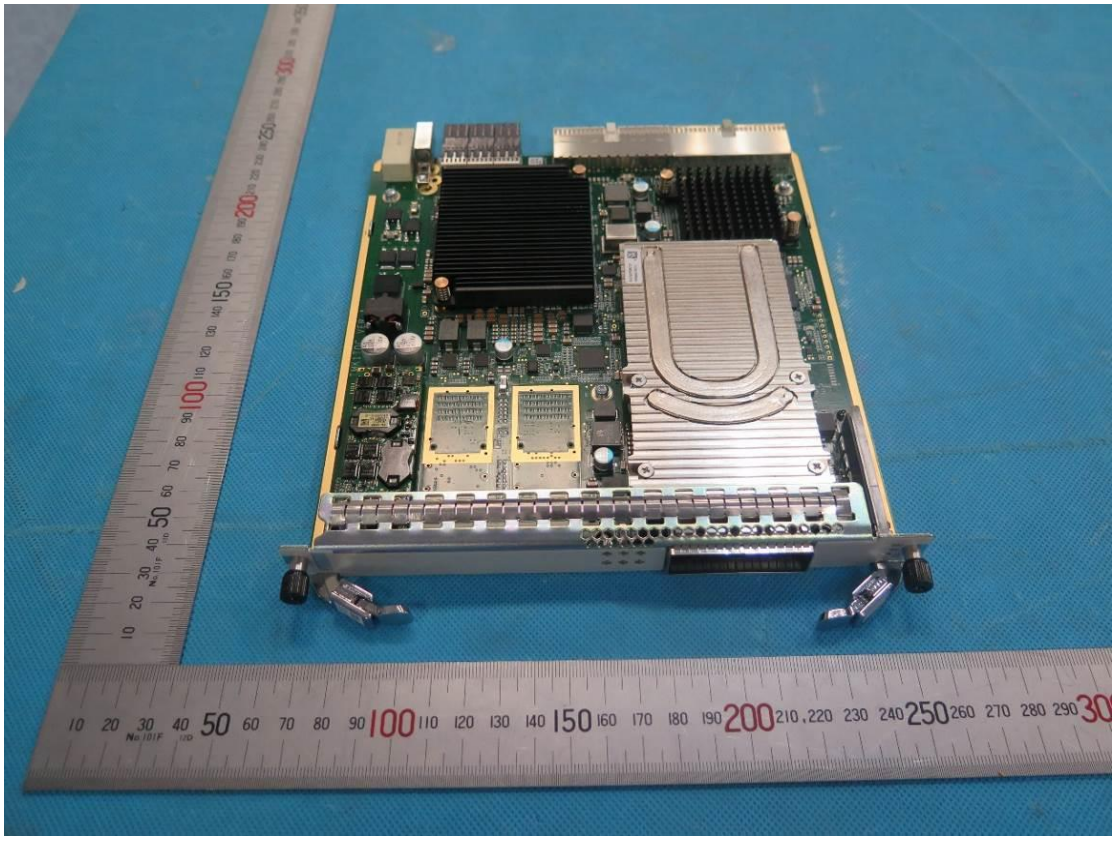


Photo-17 TMK1GTA

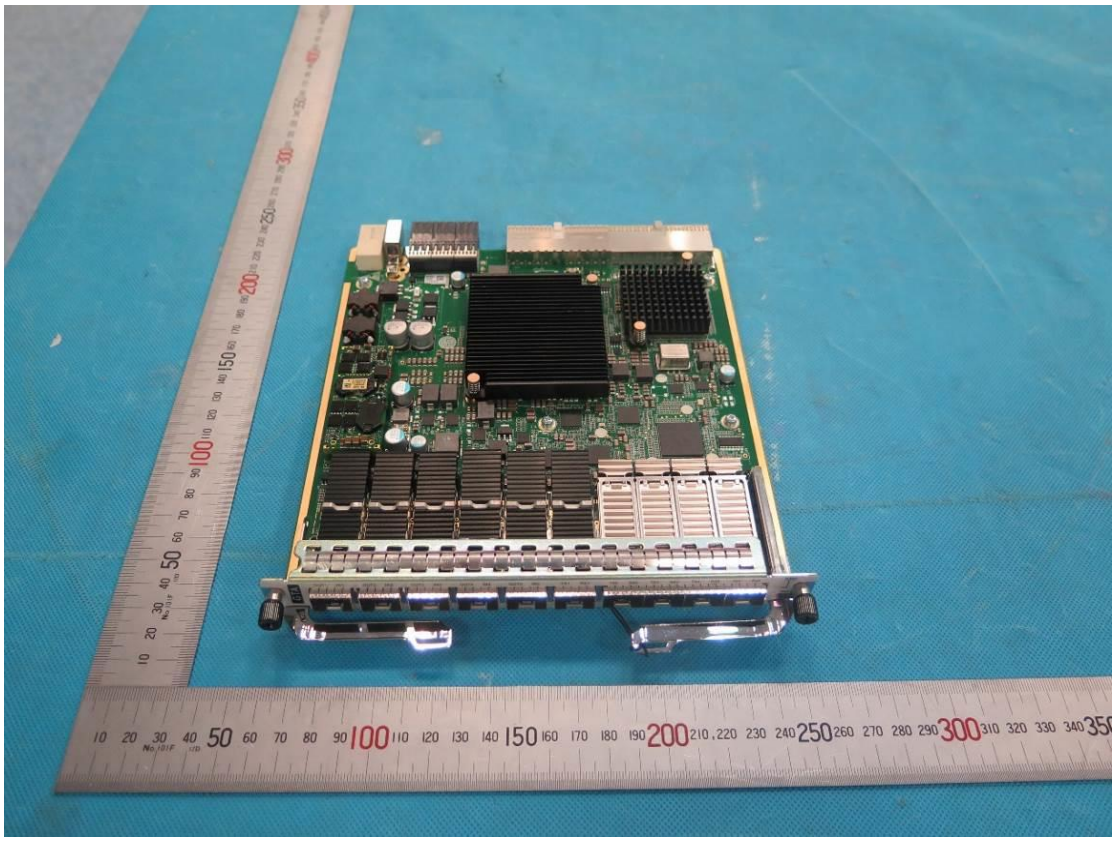


Photo-18 TMK1MDCA

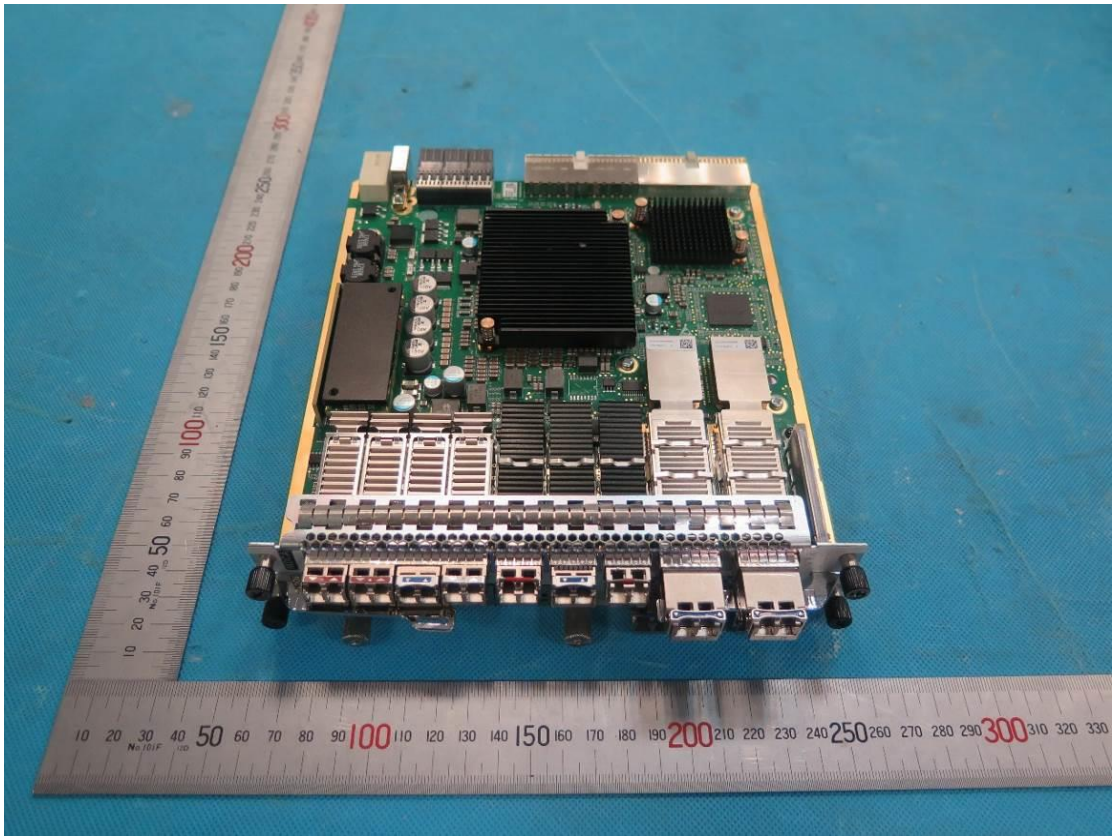


Photo-19 TMB1LDCA/ TMB1LTX

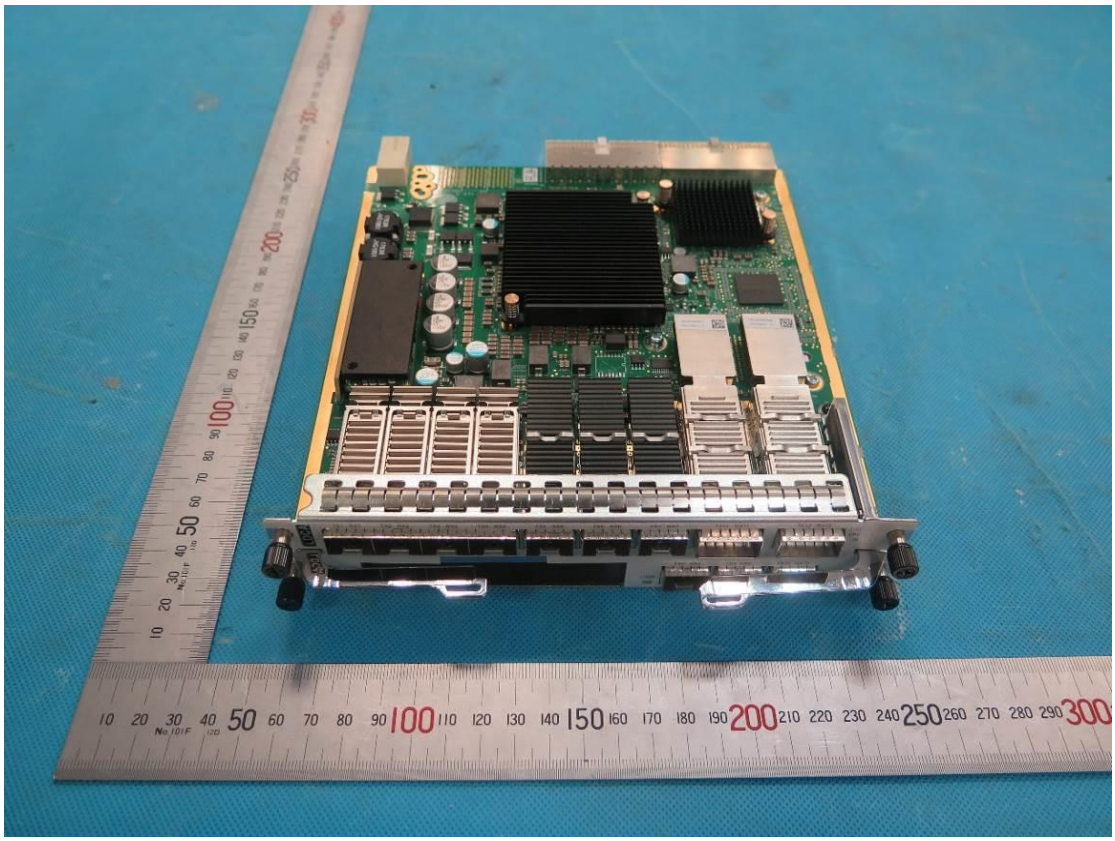


Photo-20 TNW1AT8

Photo-21 TNF2ELOM

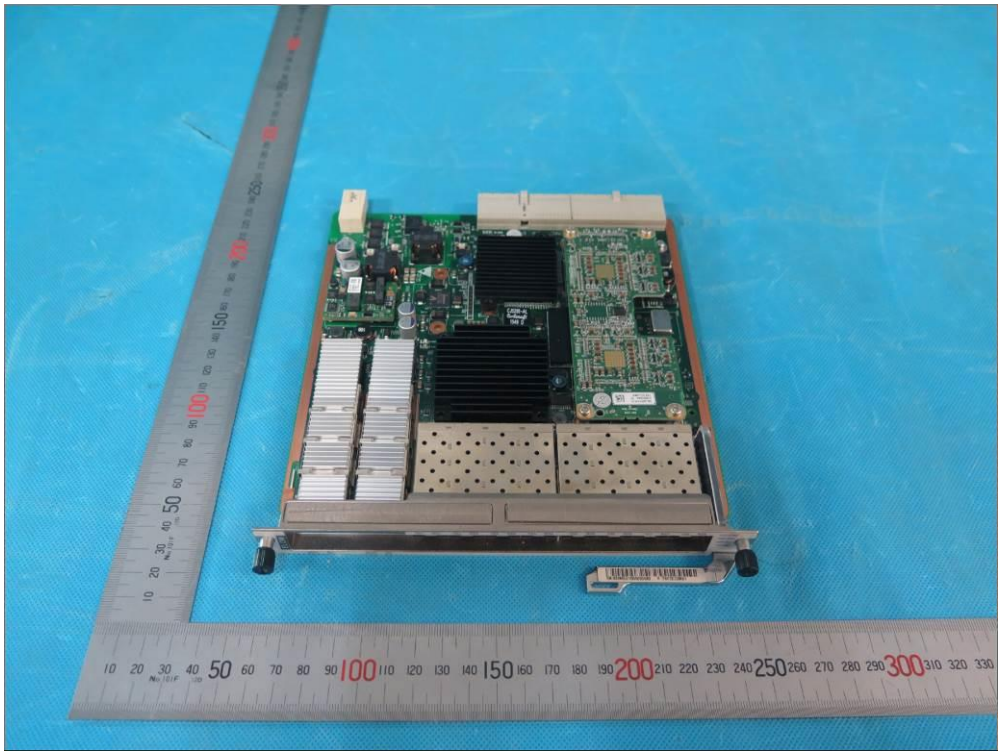


Photo-22 TNF2LDX

Photo-23 TNF2LQM2

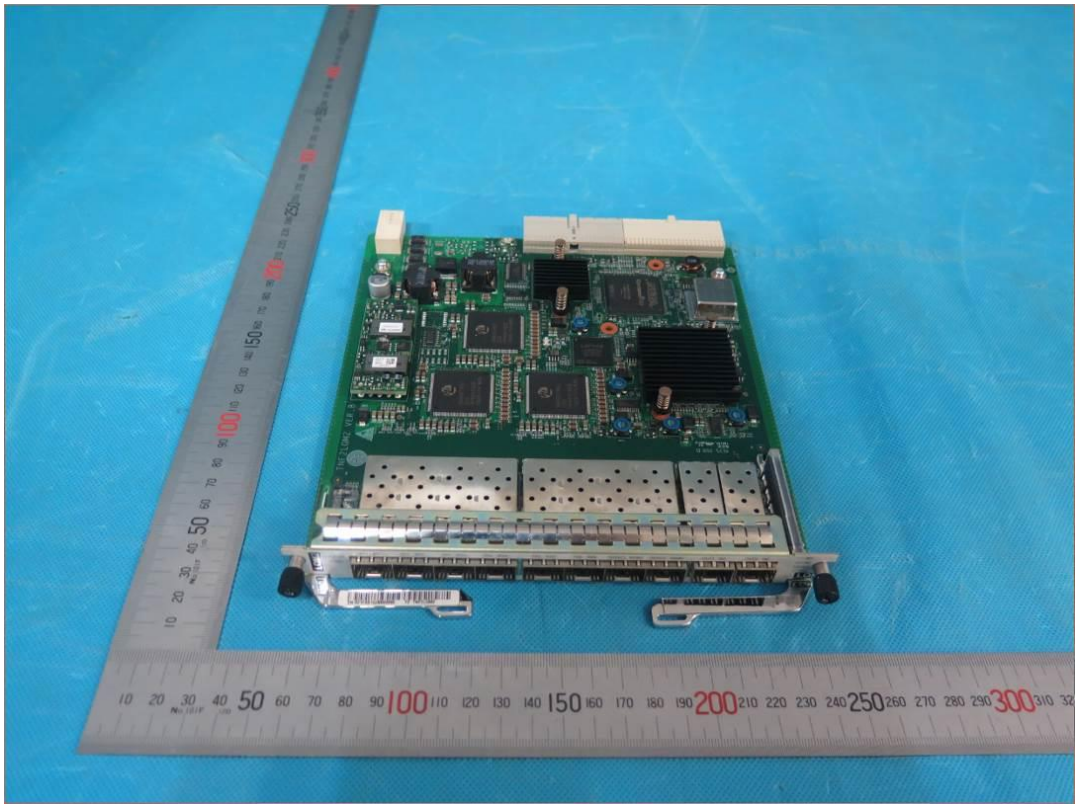


Photo-24 TNW1DXM

Photo-25 TNW1FXSO12

Photo-26 TMB1ELOM

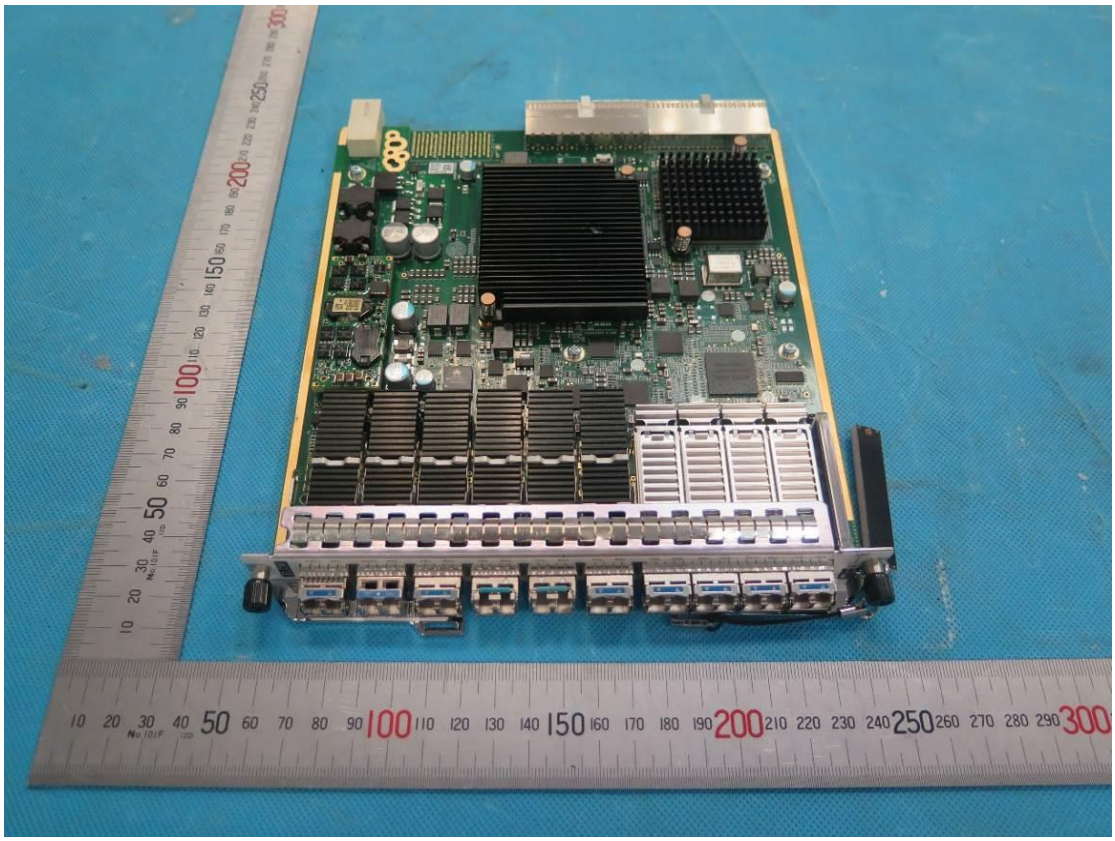


Photo-27 TMB1LDC

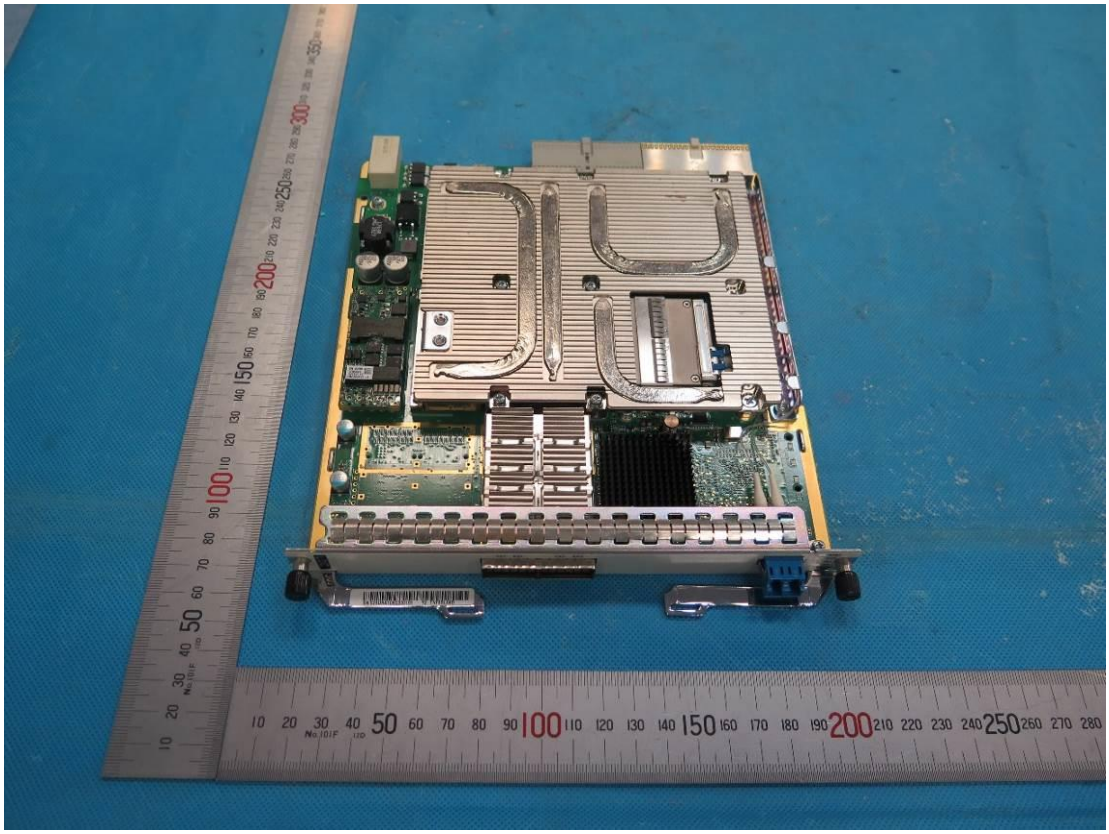


Photo-28 TMK1SLNO

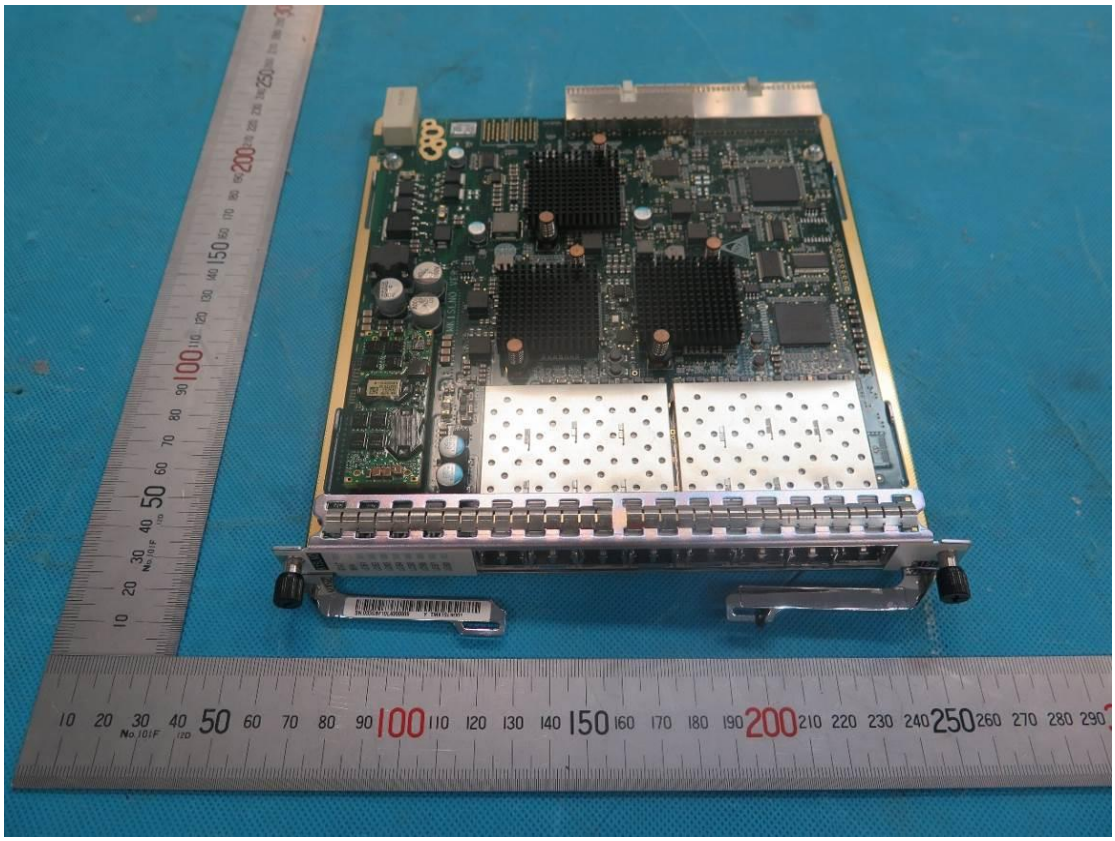


Photo-29 TMB1SL41Q

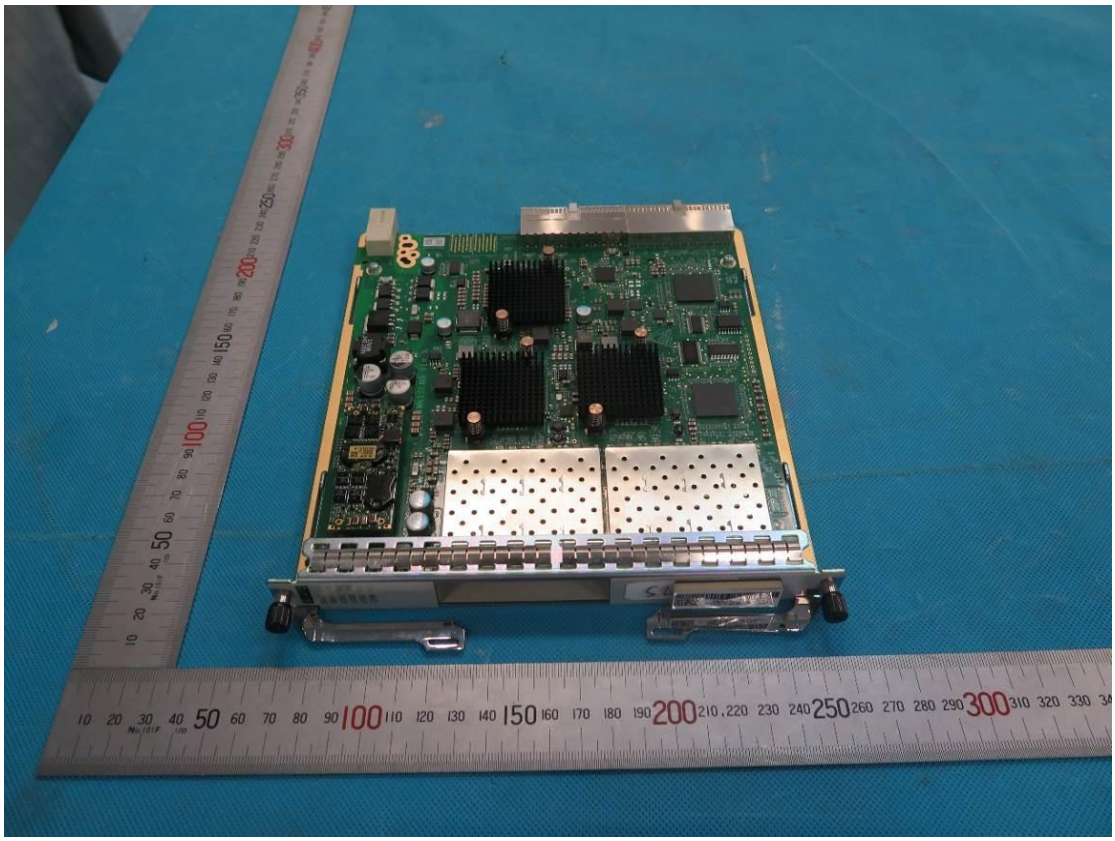


Photo-30 TMB1SL16S

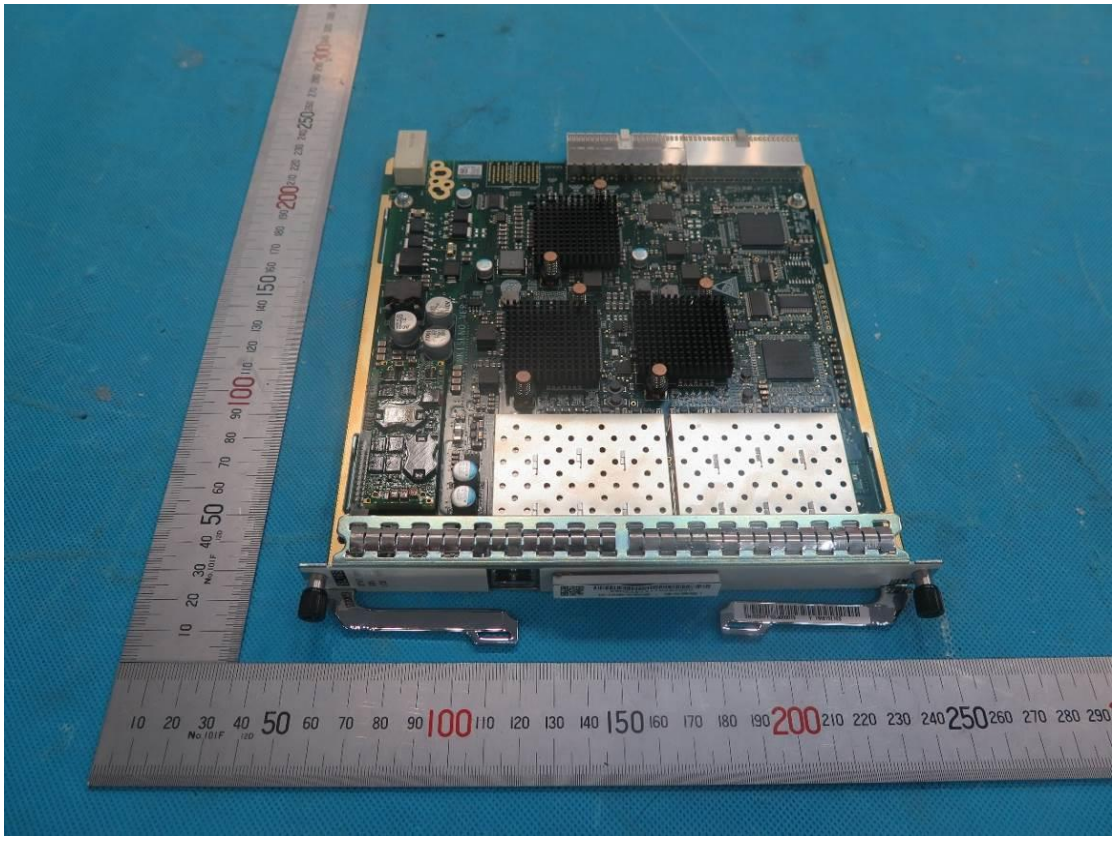


Photo-31 TMK1EX10

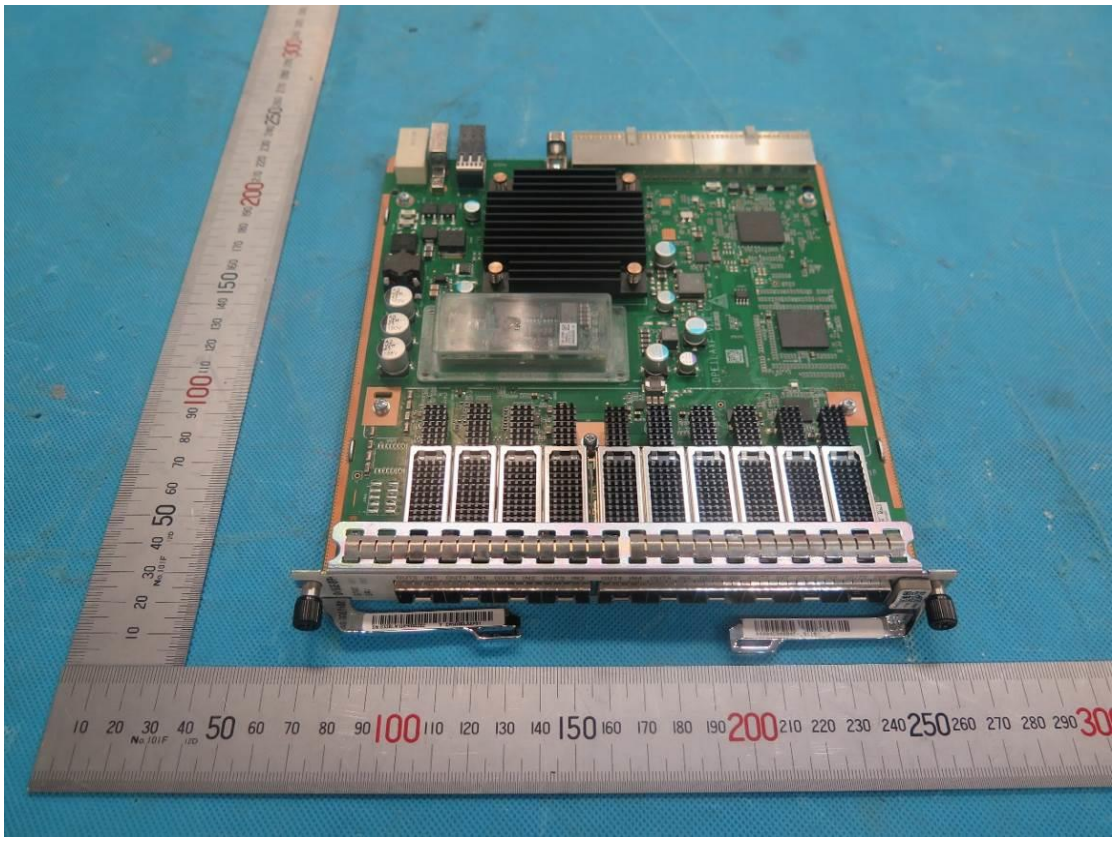


Photo-32 TMK1TDC

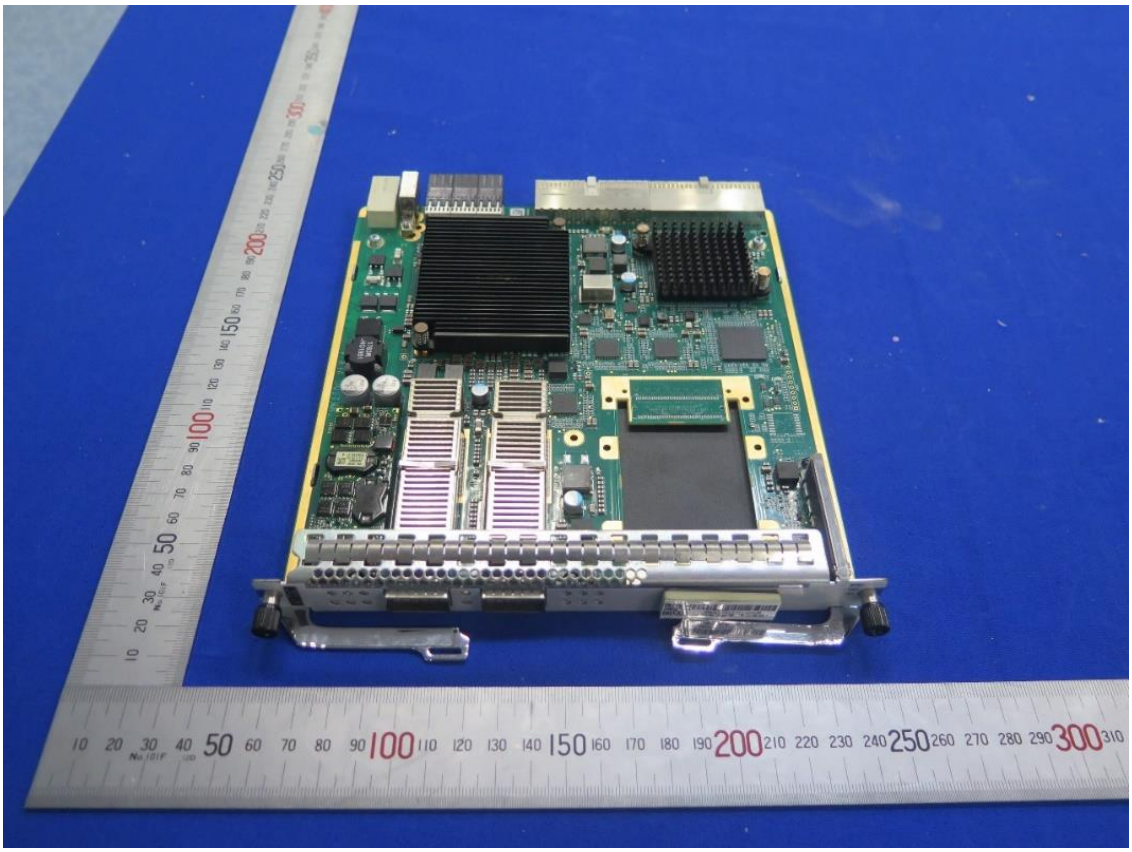


Photo-33 TMK1SL64S

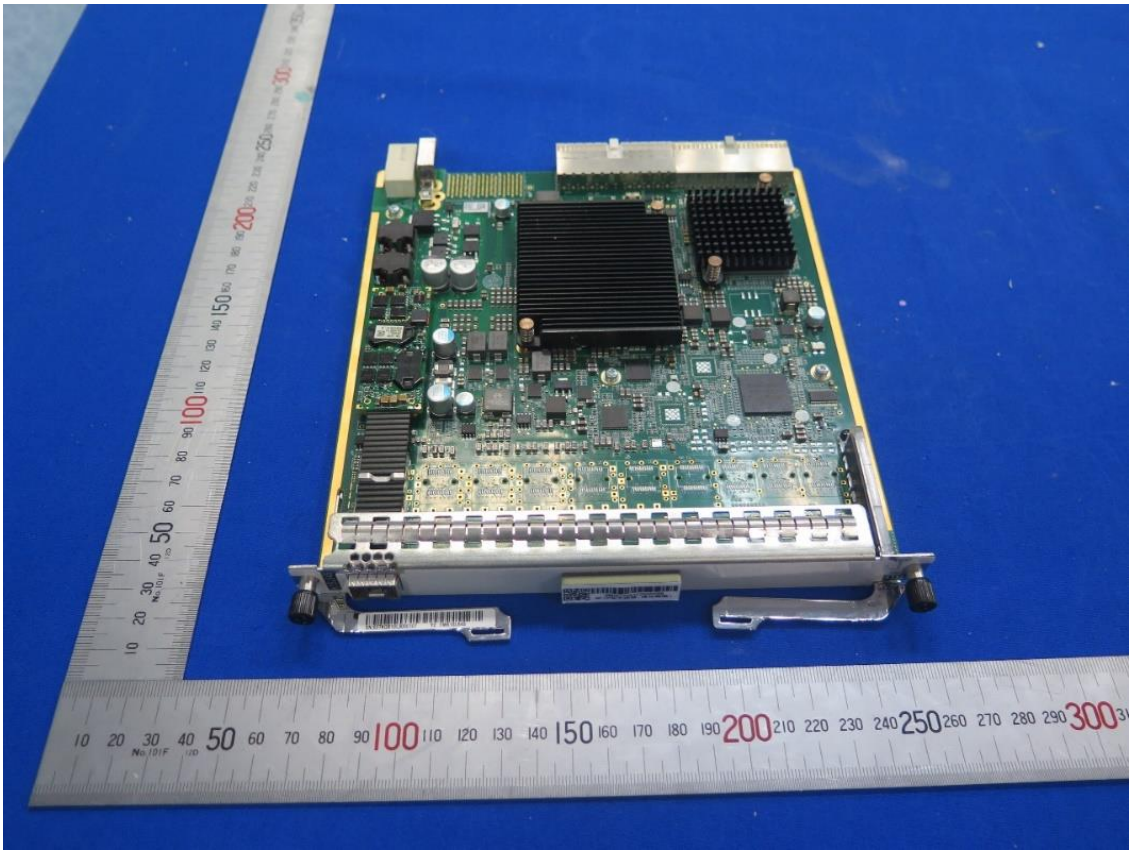


Photo-34 TMK1SL16Q

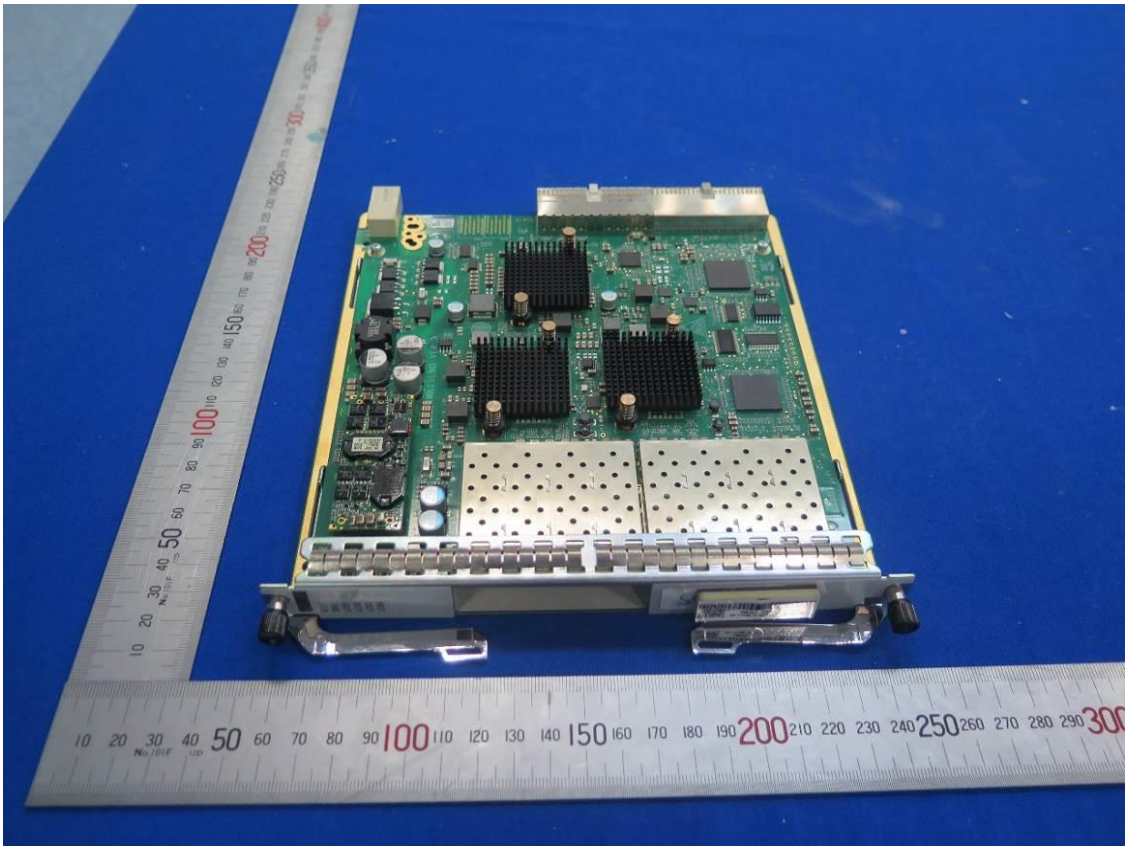


Photo-35 TMB1SL41O

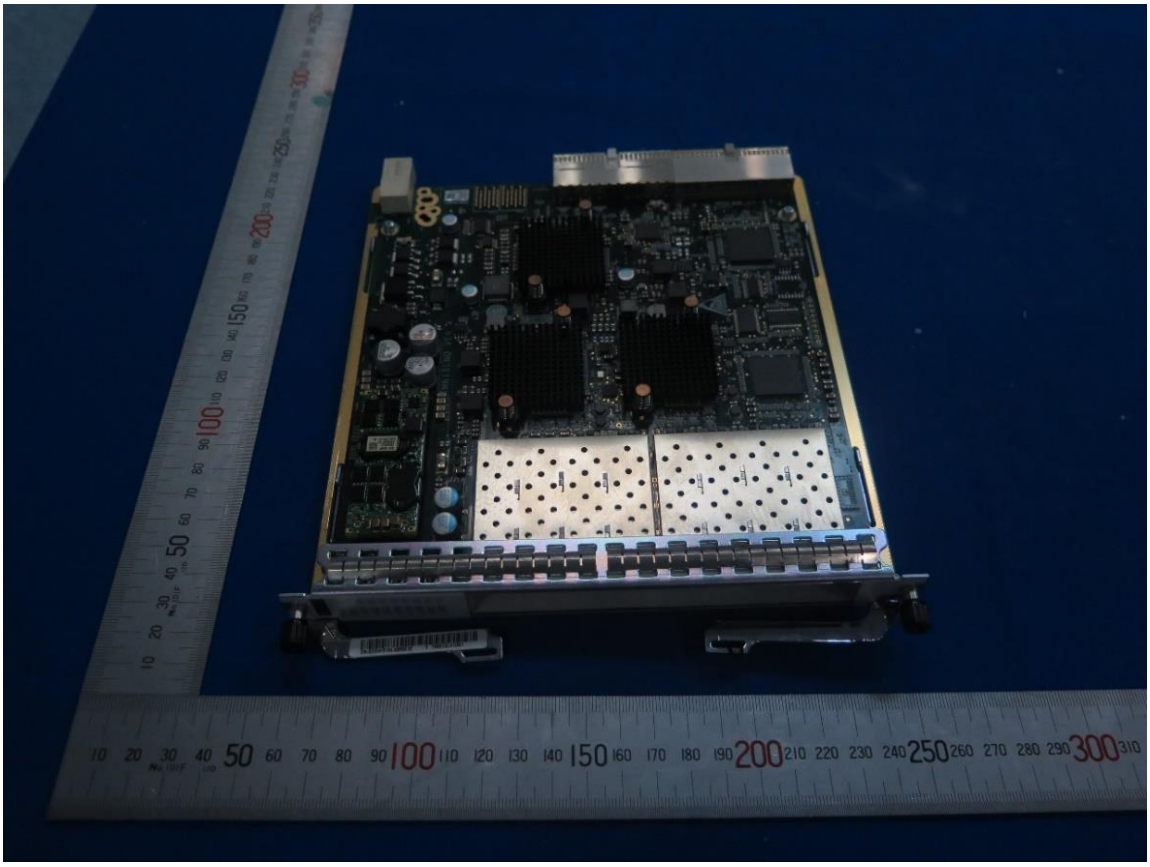


Photo-36 TMB1EGS4

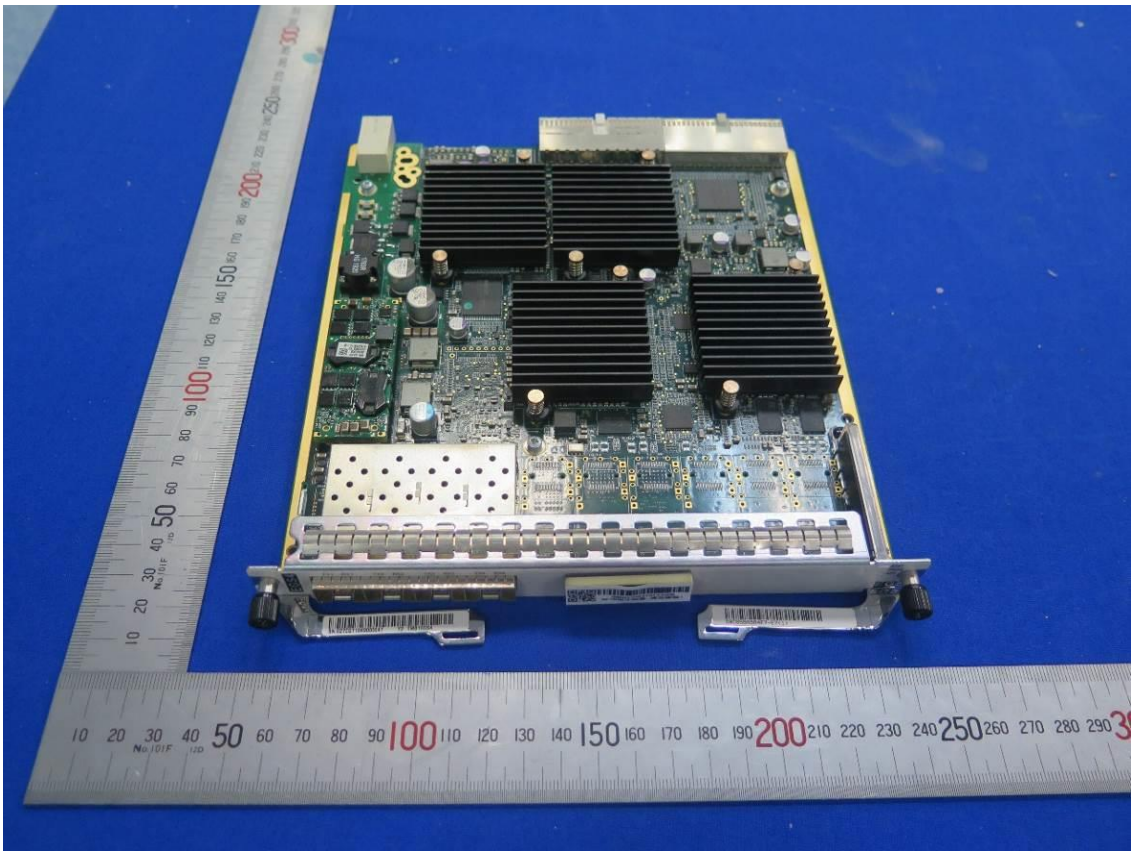


Photo-37 TMB1EFS8

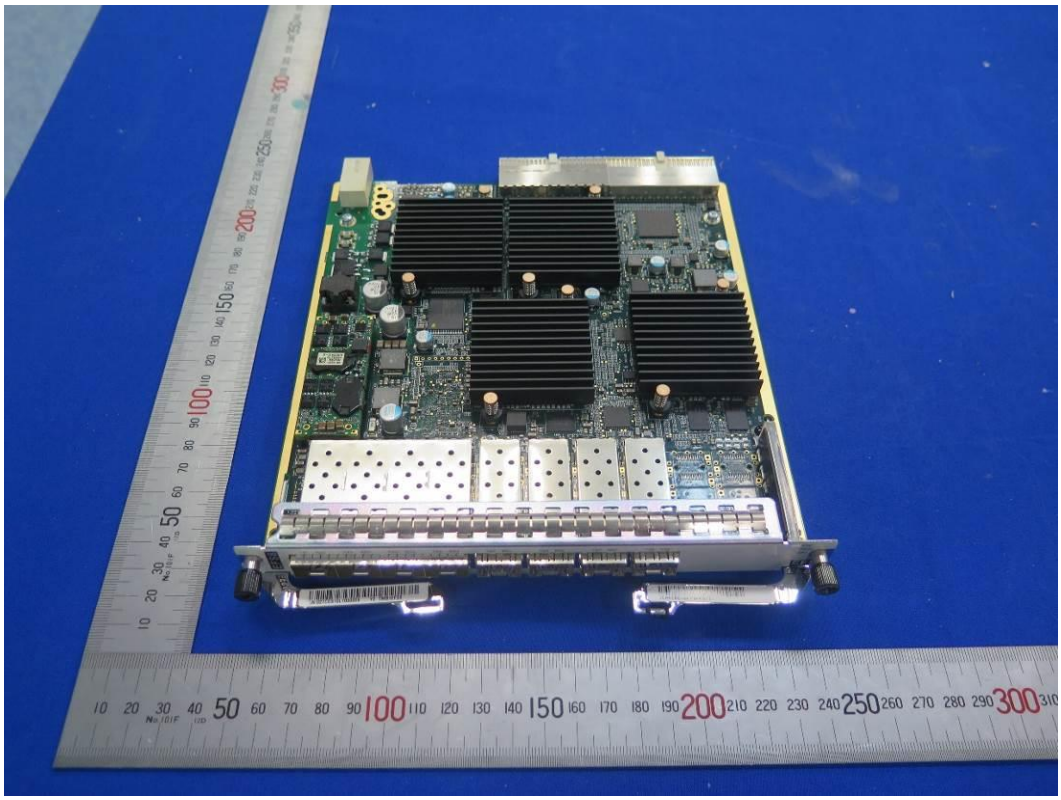


Photo-38 TMK1TTA

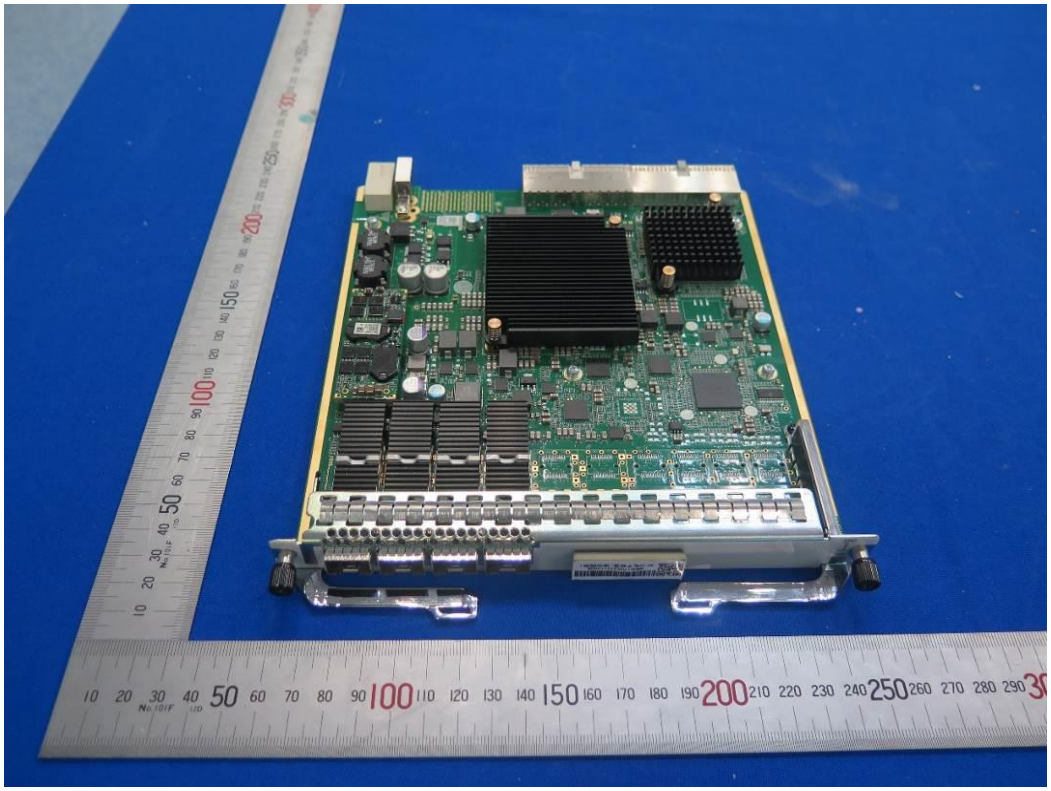


Photo-39 TMK1UNQ2

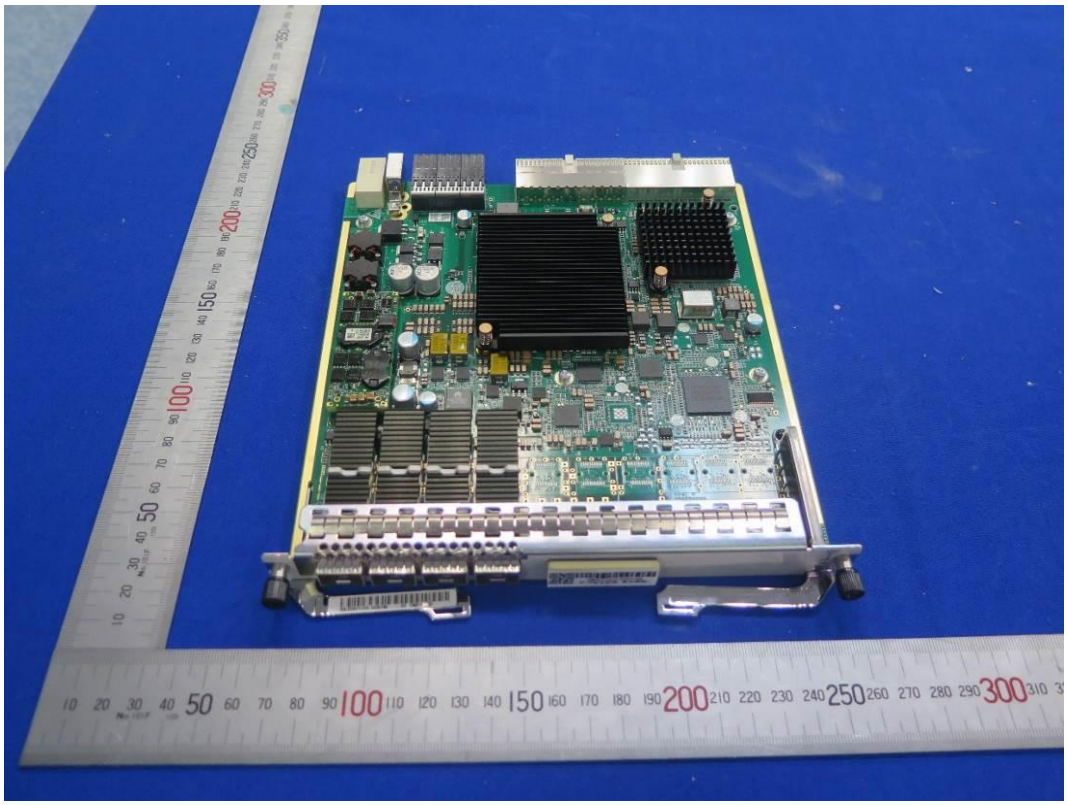


Photo-40 TNF1TSPB

Photo-41 TNW1PF4E8

Photo-42 TNF1AUX

Photo-43 TMB2SBM3

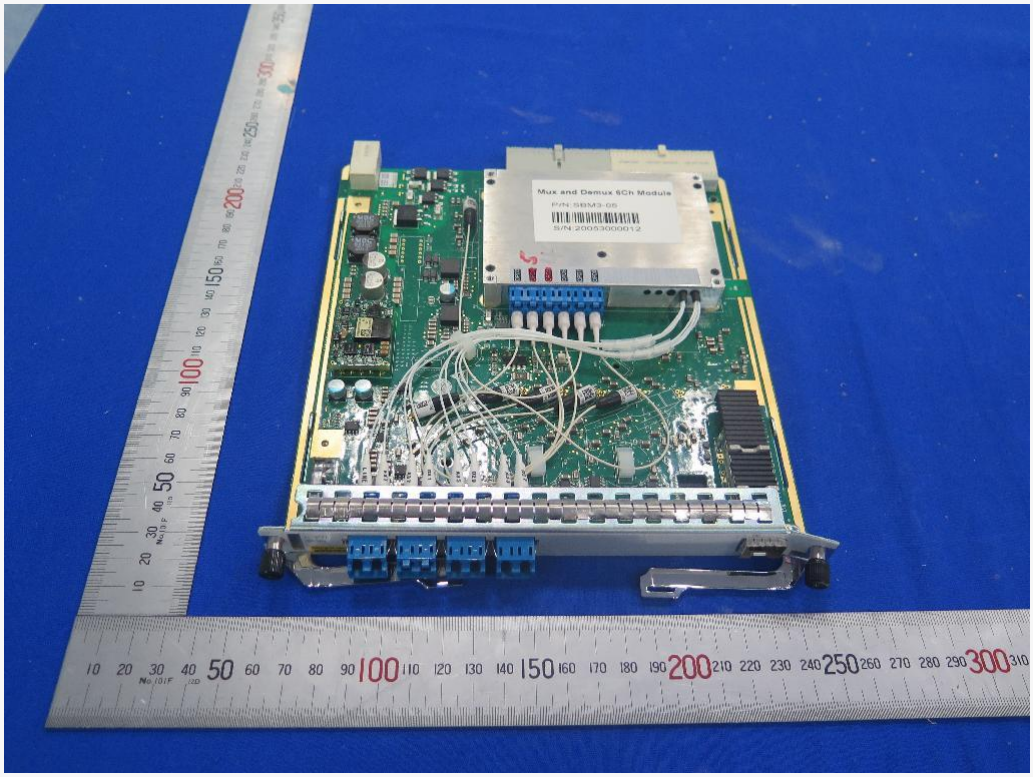


Photo-44 TNF2OBU01/01JP

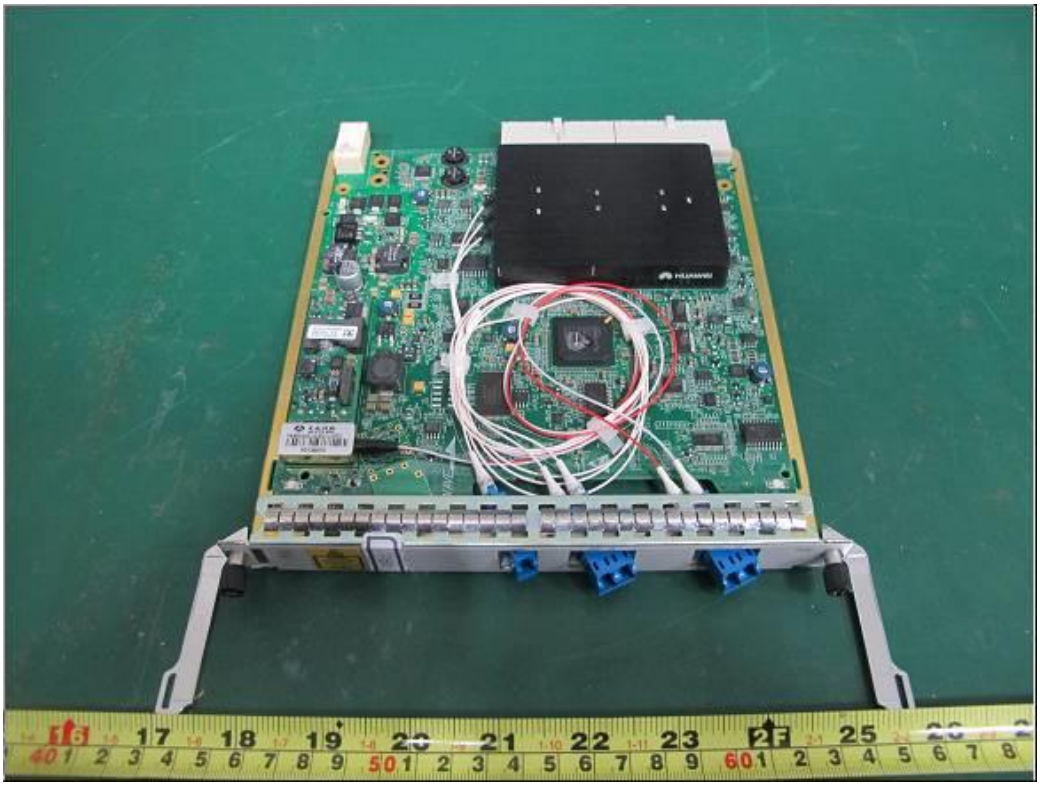


Photo-45 TNF2OBU02

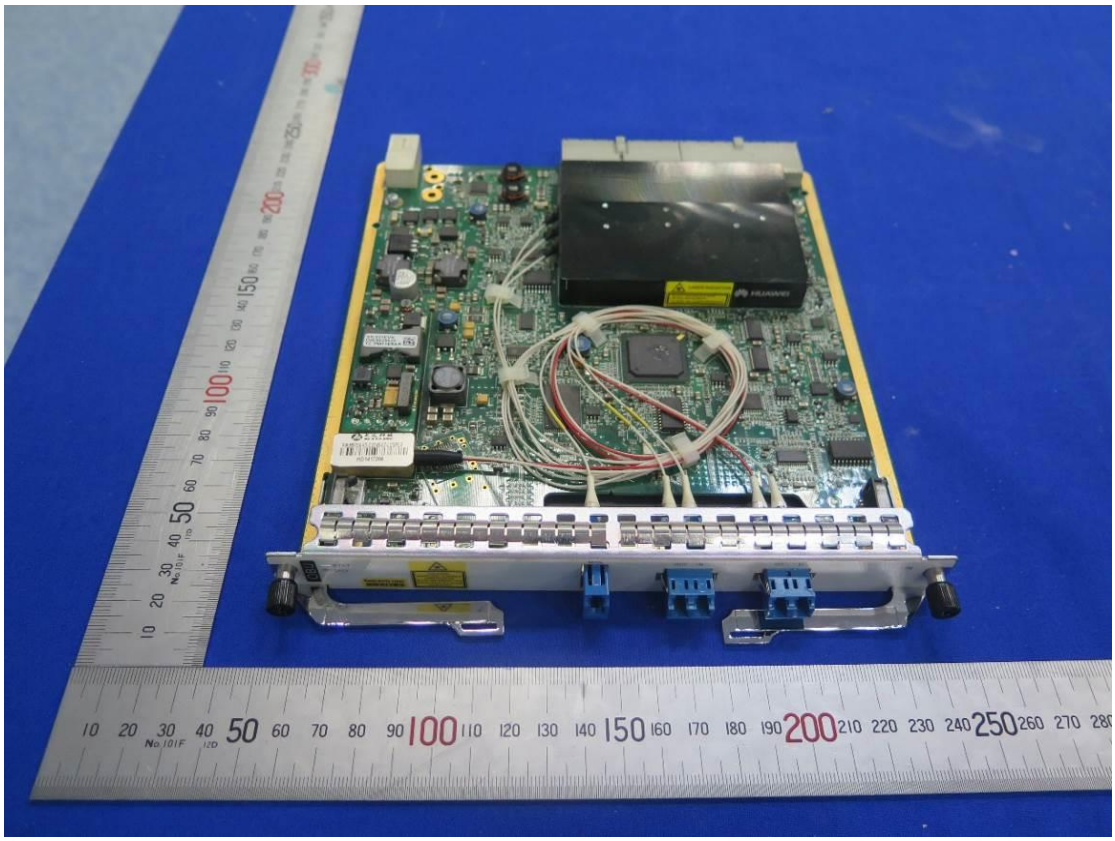


Photo-46 TNF1OPM801/01JP

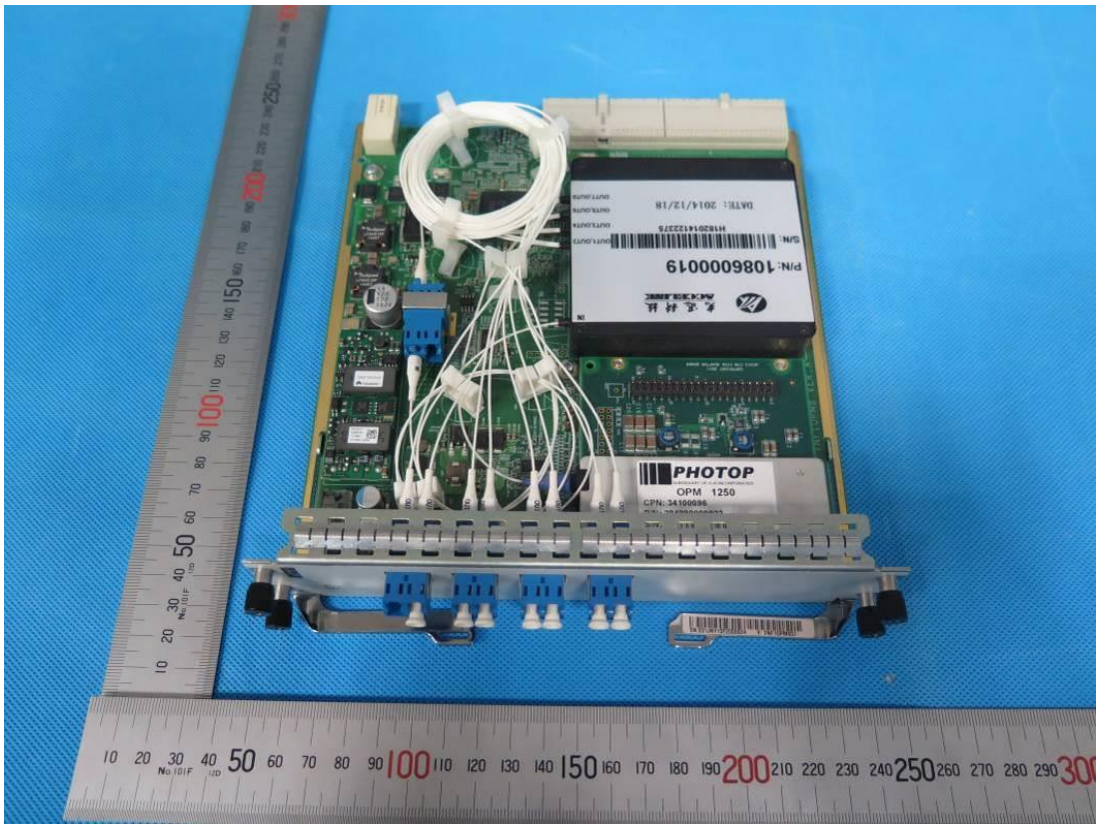


Photo-47 TNF1ST2/ ST2JP

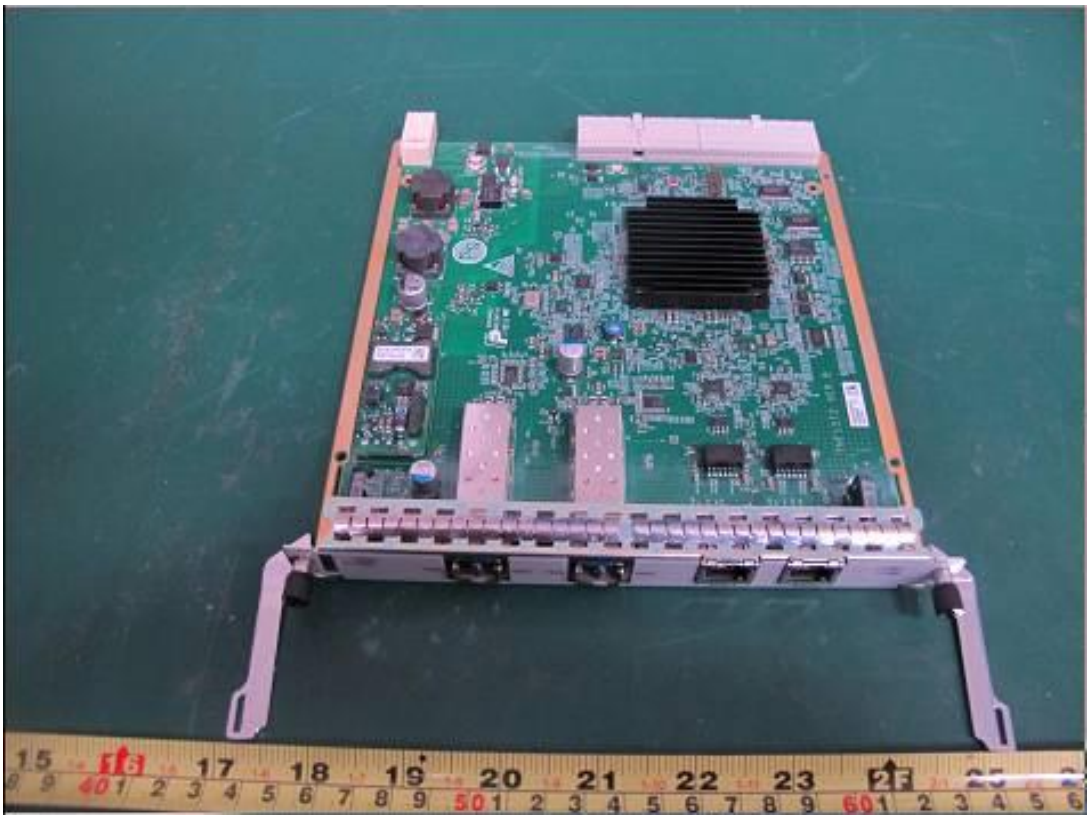


Photo-48 TNF1AST401/401JP

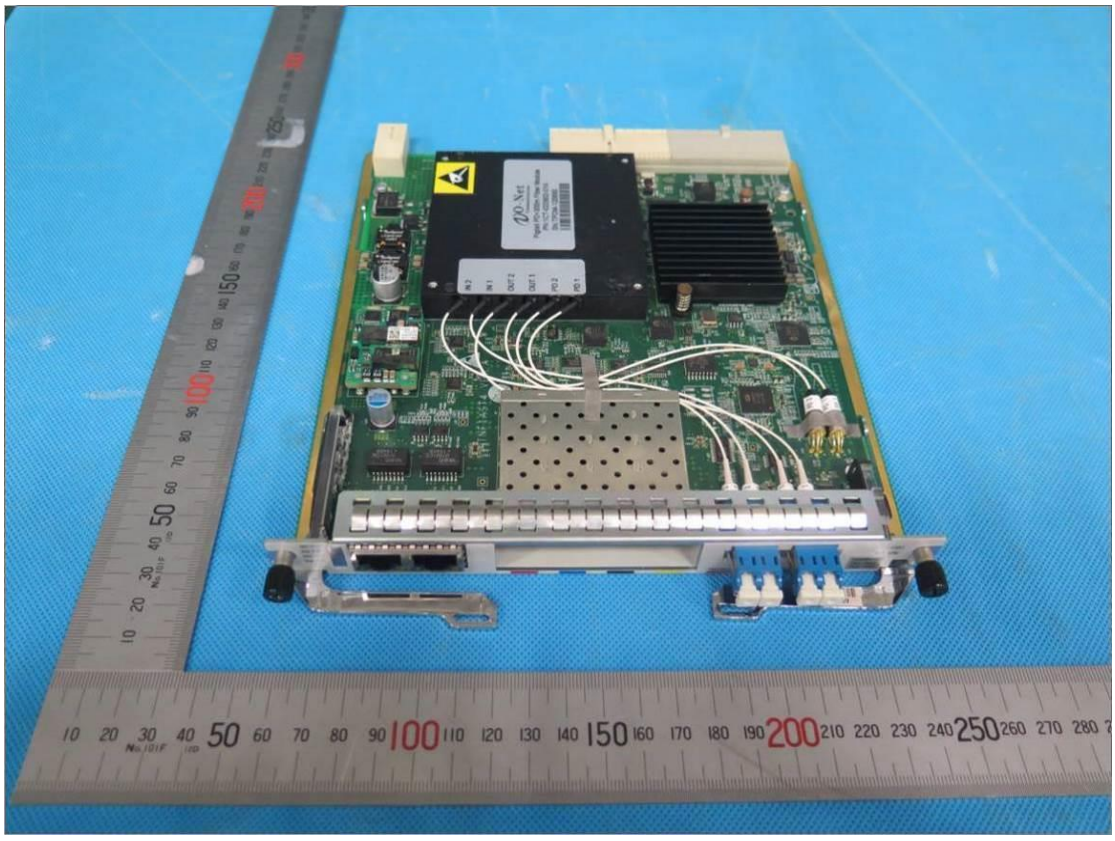


Photo-49 TMB1DAP

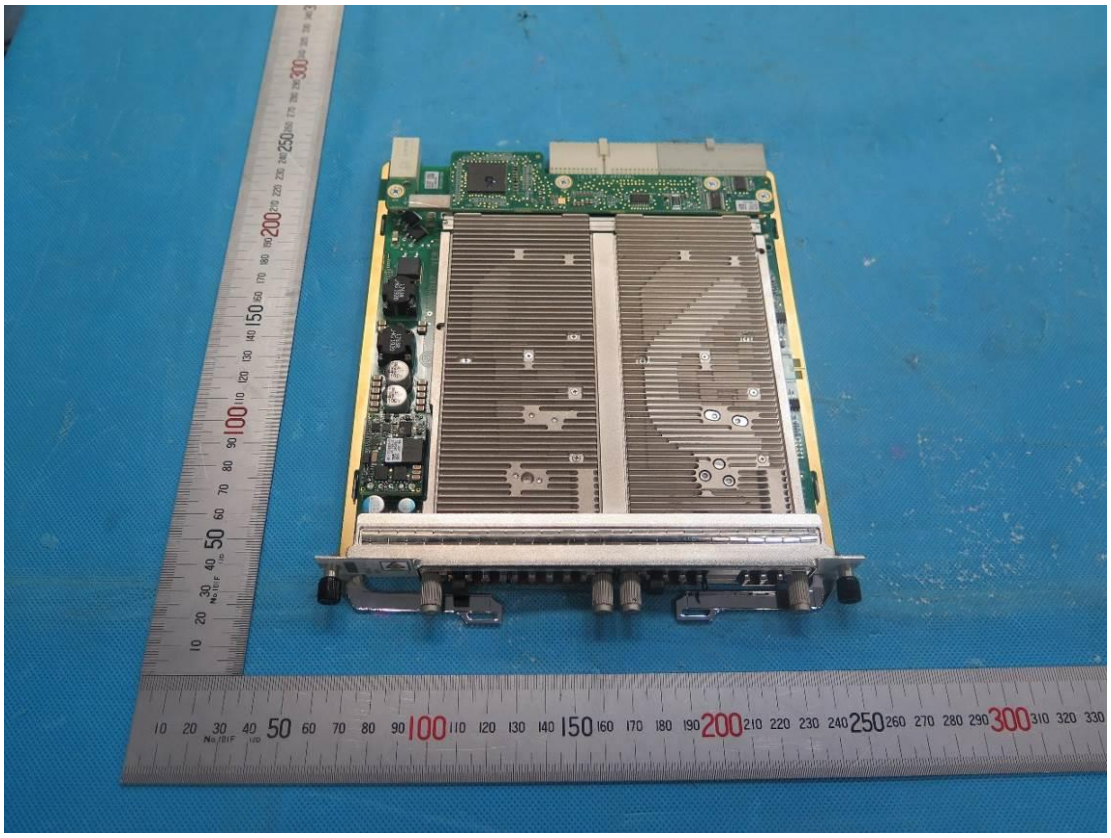


Photo-50 TMB1OLP

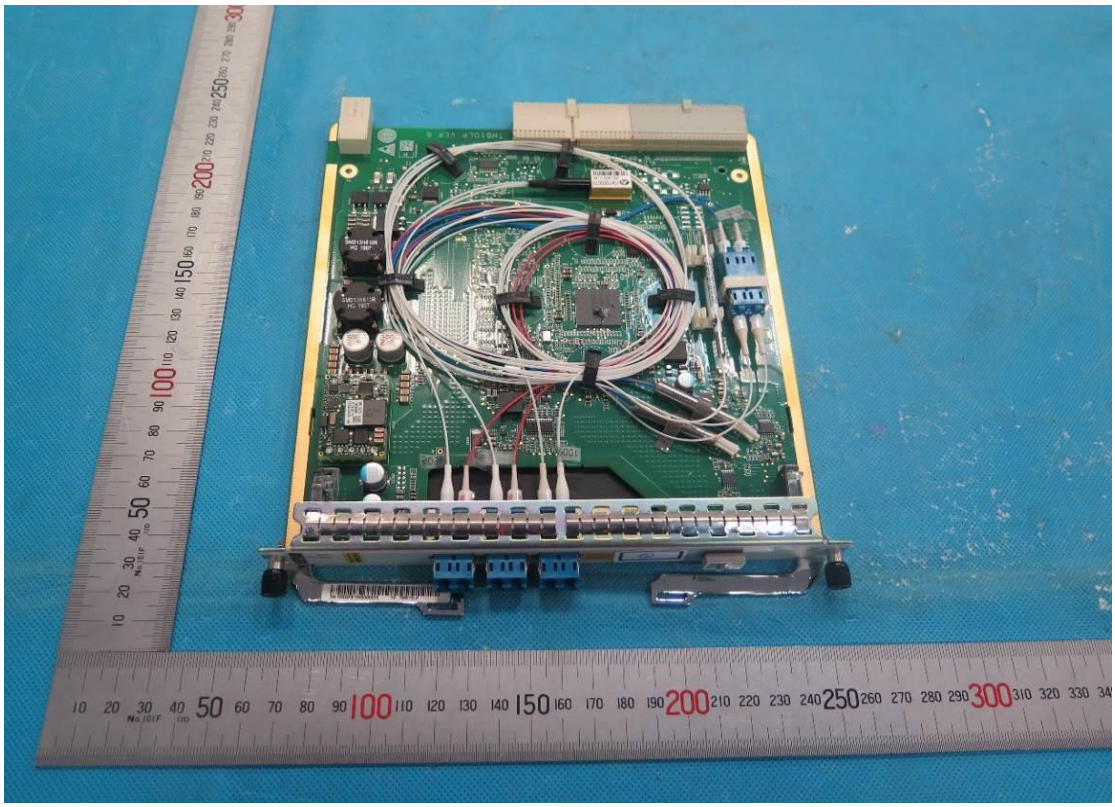


Photo-51 TNF1ITL06/08/06C/08C/06JP

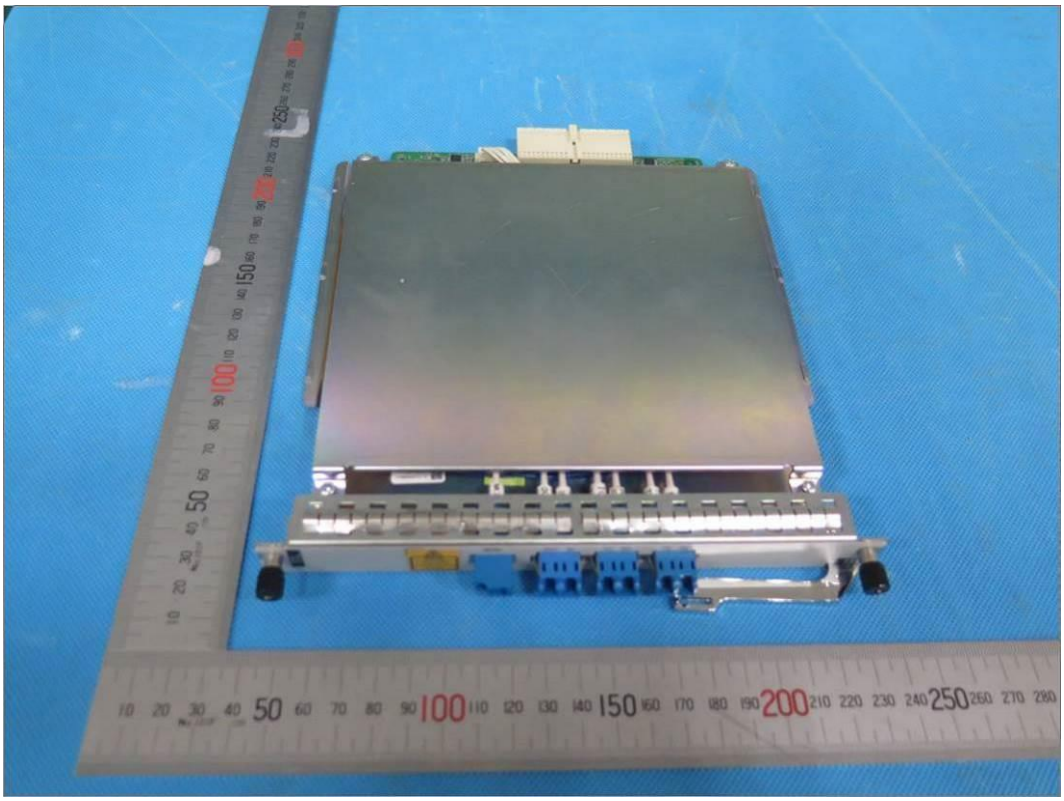


Photo-52 TMB1AST201

Photo-53 TNF1WSMD401/401JP

Photo-54 TNF1WSMD9XF

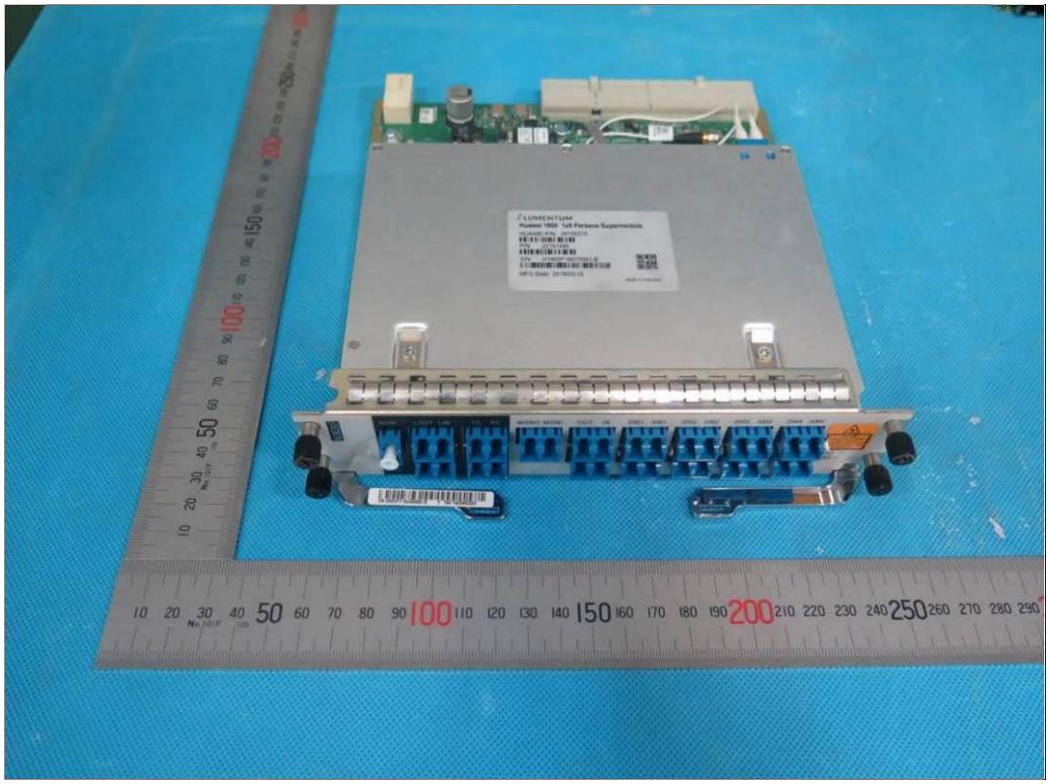


Photo-55 TNF1DAP

Photo-56 TNF1SCS01/02

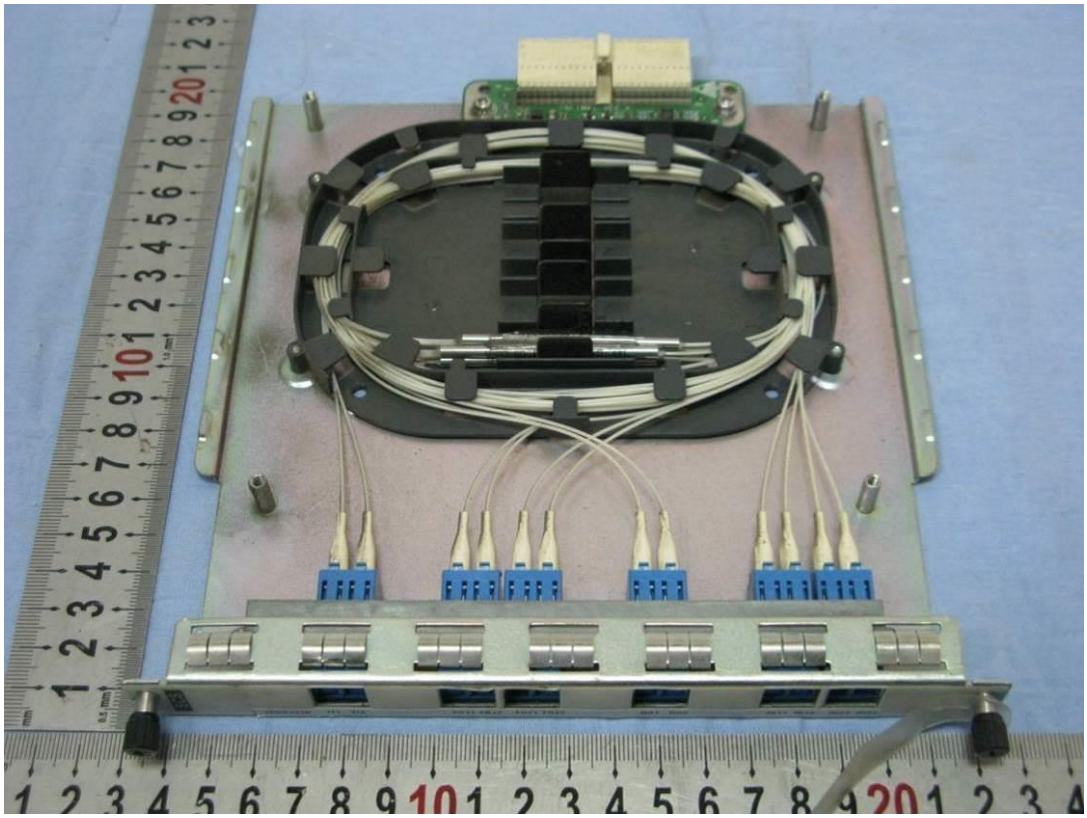


Photo-57 TNF1DFIU01/01JP /02/03/04

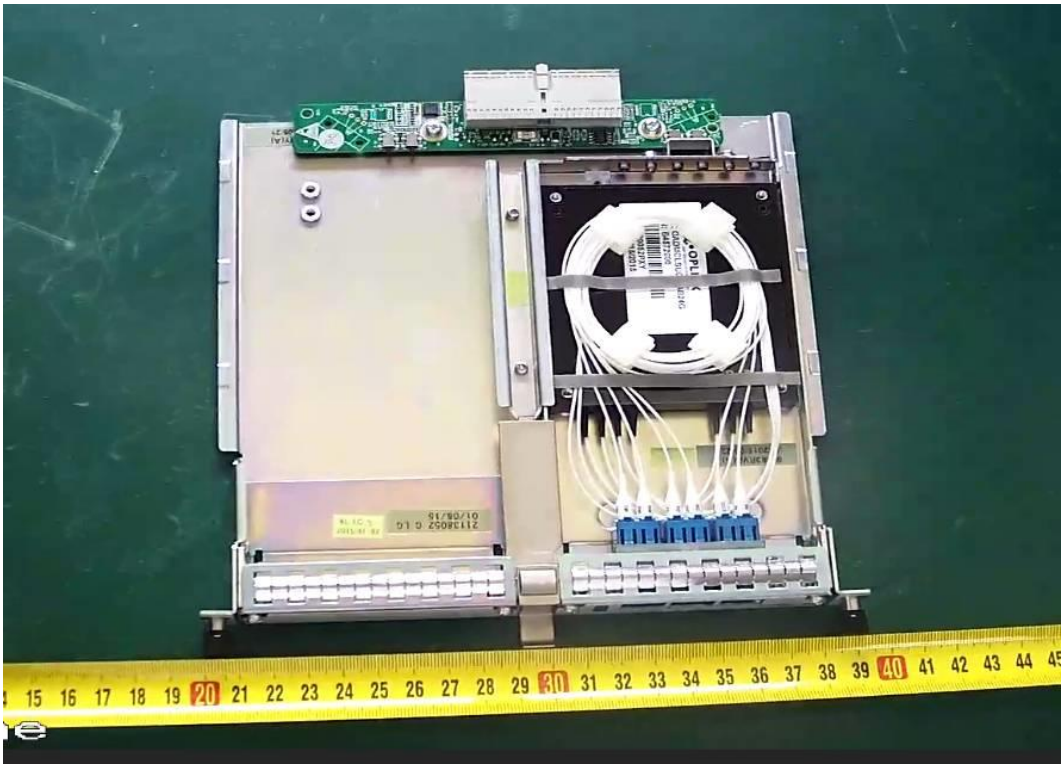


Photo-58 TNF1EMR410/411/412/413/414/415/416/417/418/419

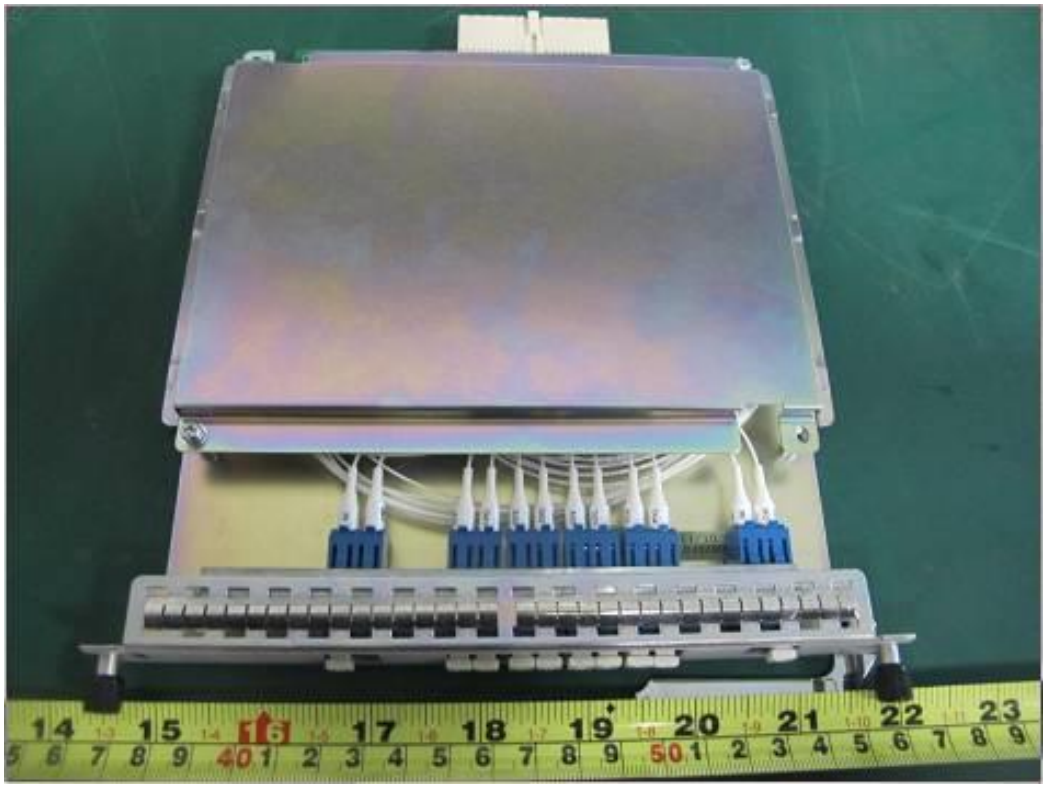


Photo-59 TNF1EMR801/801JP/802/802JP/803/803JP/804/804JP/805/805JP

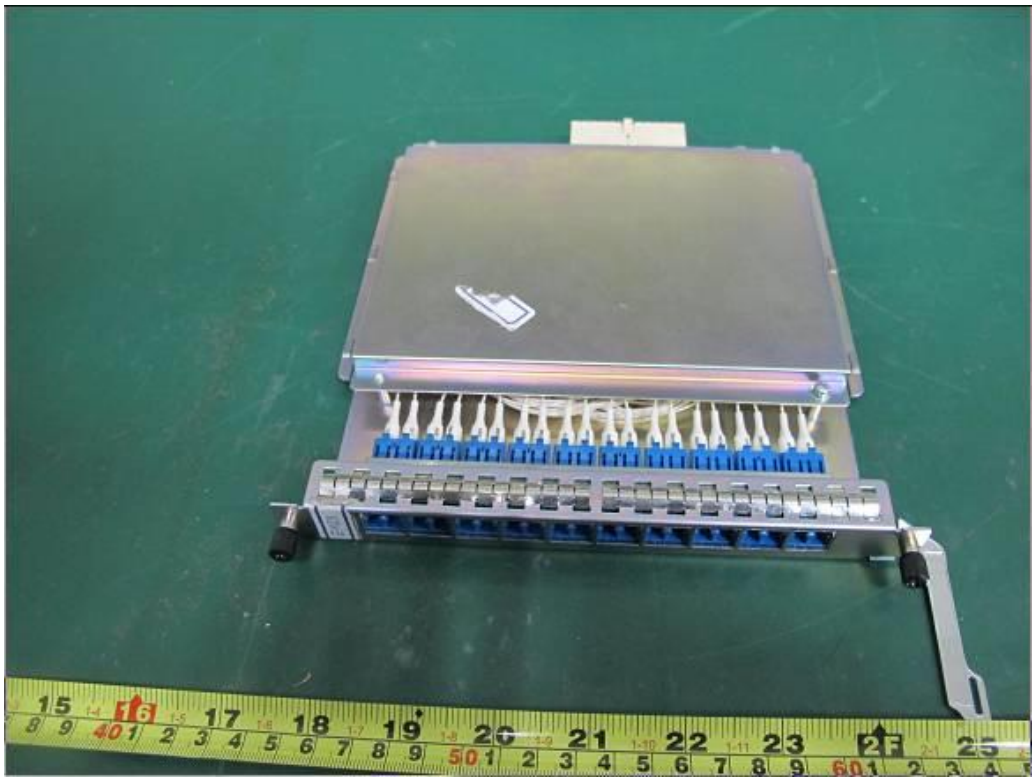


Photo-60 TNF1EMR2M02

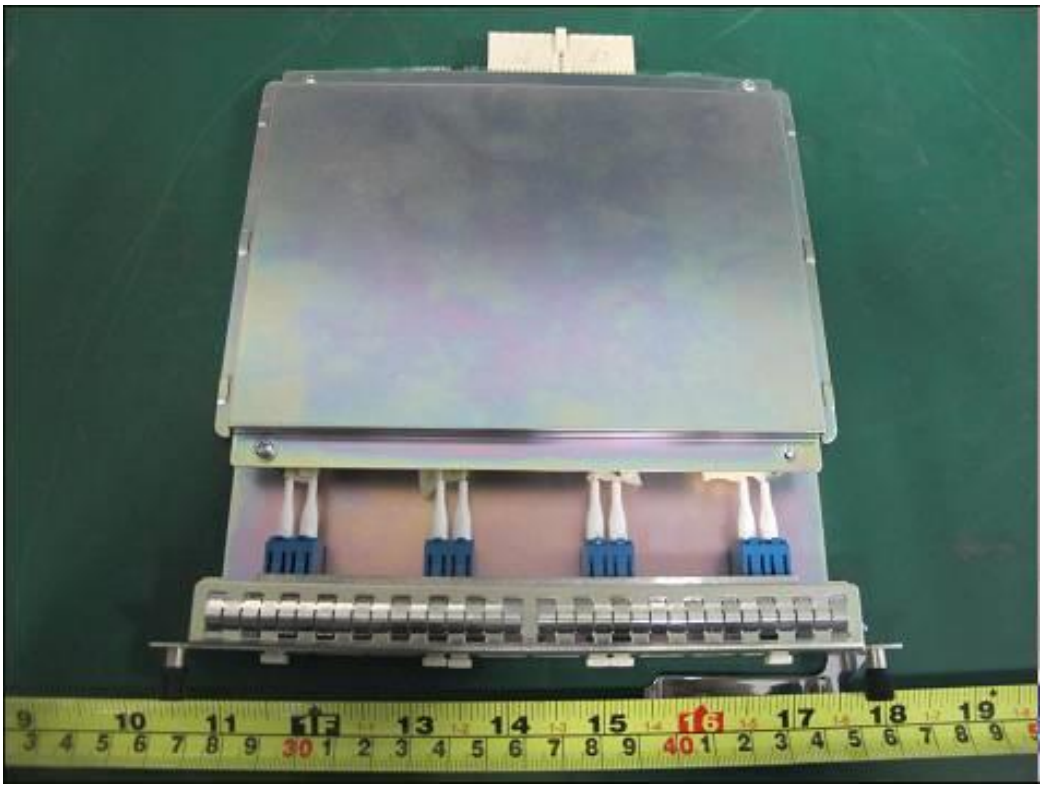


Photo-61 TNF1MR1M01/02

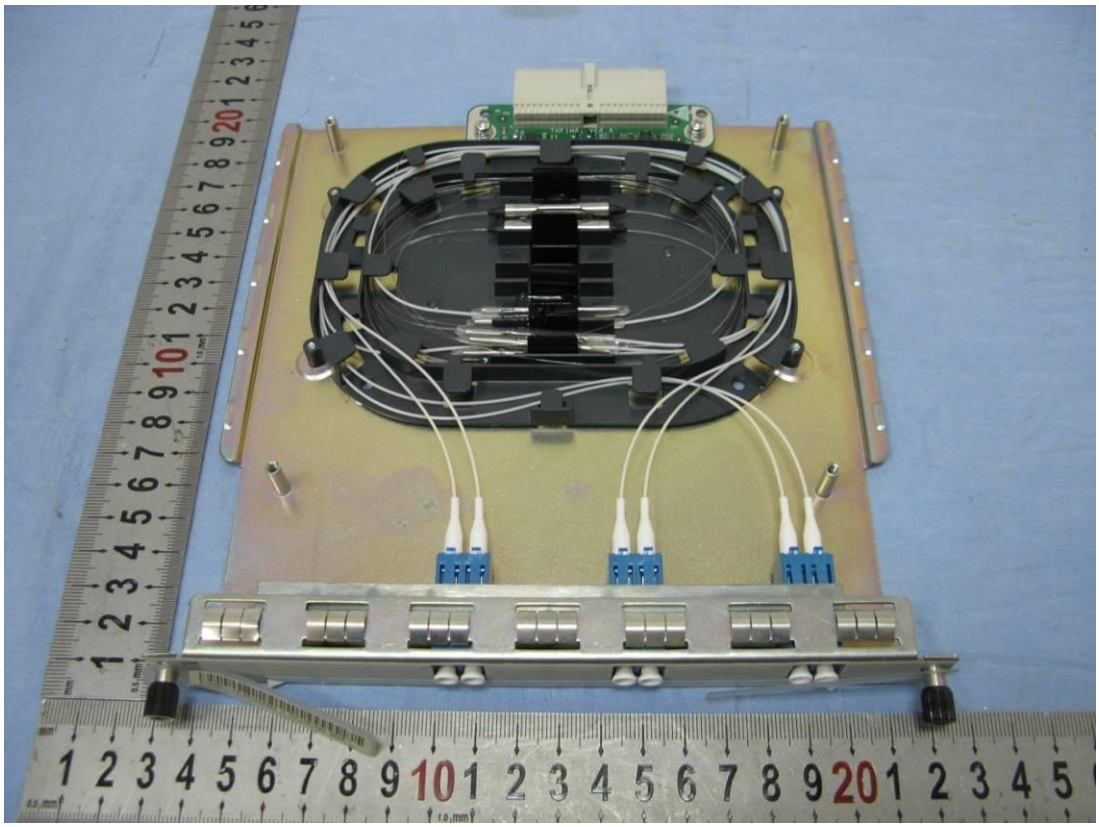


Photo-62 TNF1MR2M01/02

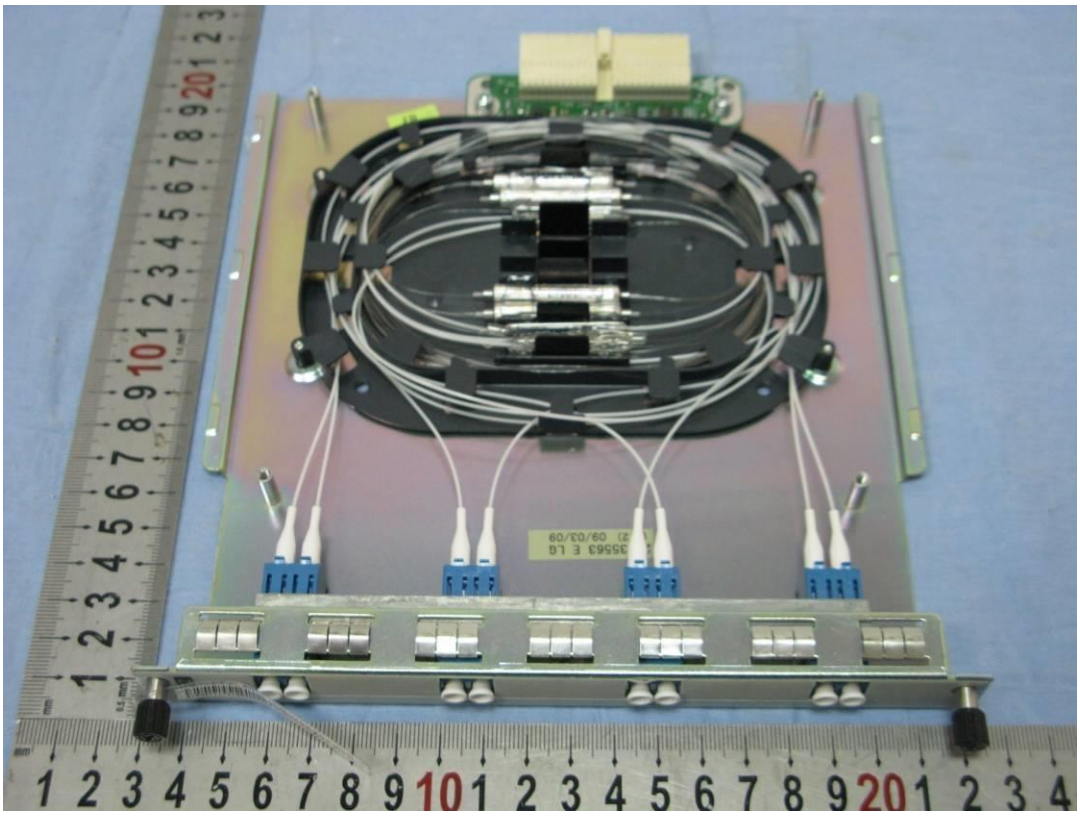


Photo-63 TNF1MR401/402/410/4S01/4S02/4S03/410JP/411/412/413/414/415/416/417/418/419

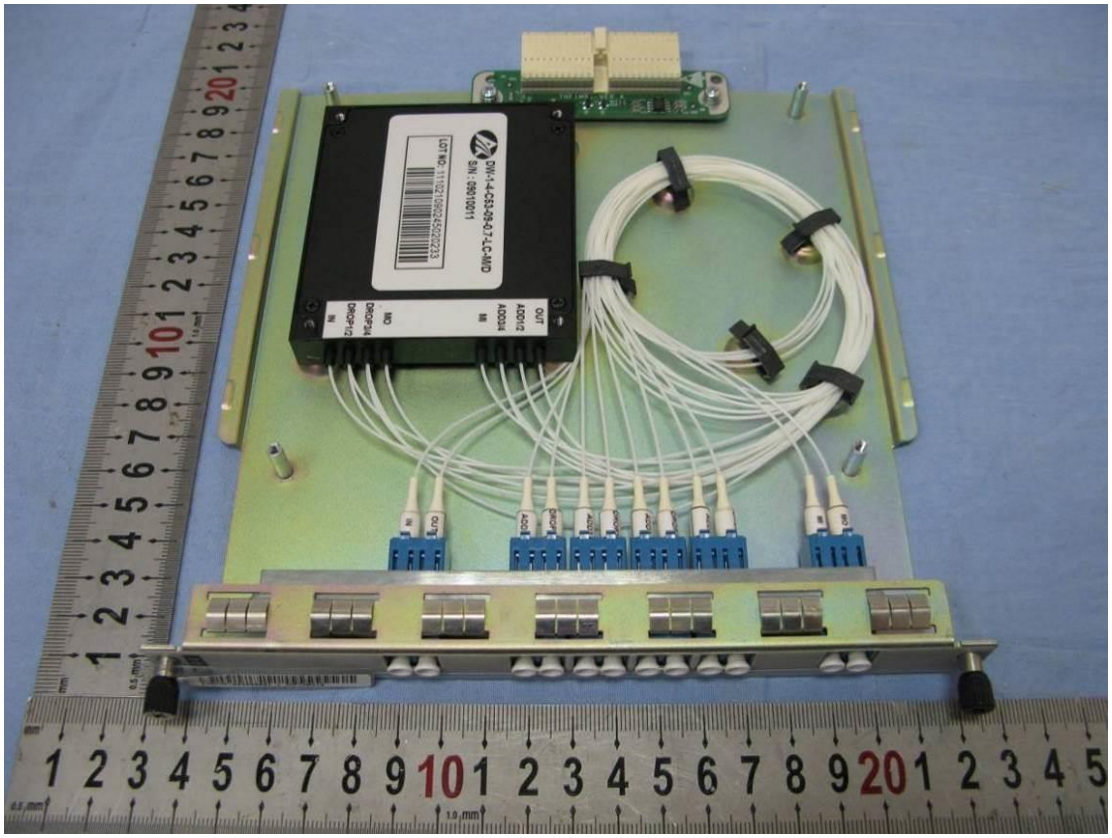


Photo-64 TNF1MR801/801JP/802/802JP/803/803JP/804/804JP/805/805JP/806/807/808/809/810/811/812/822/823

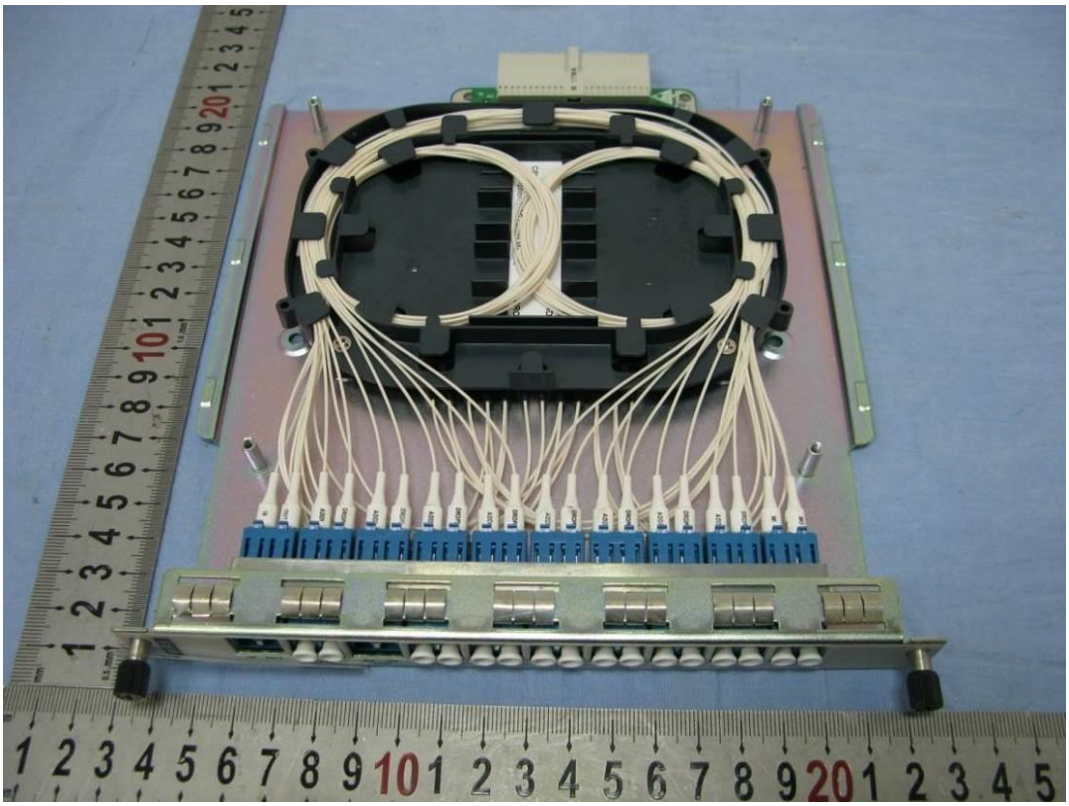


Photo-65 TNF1MD801/8M01

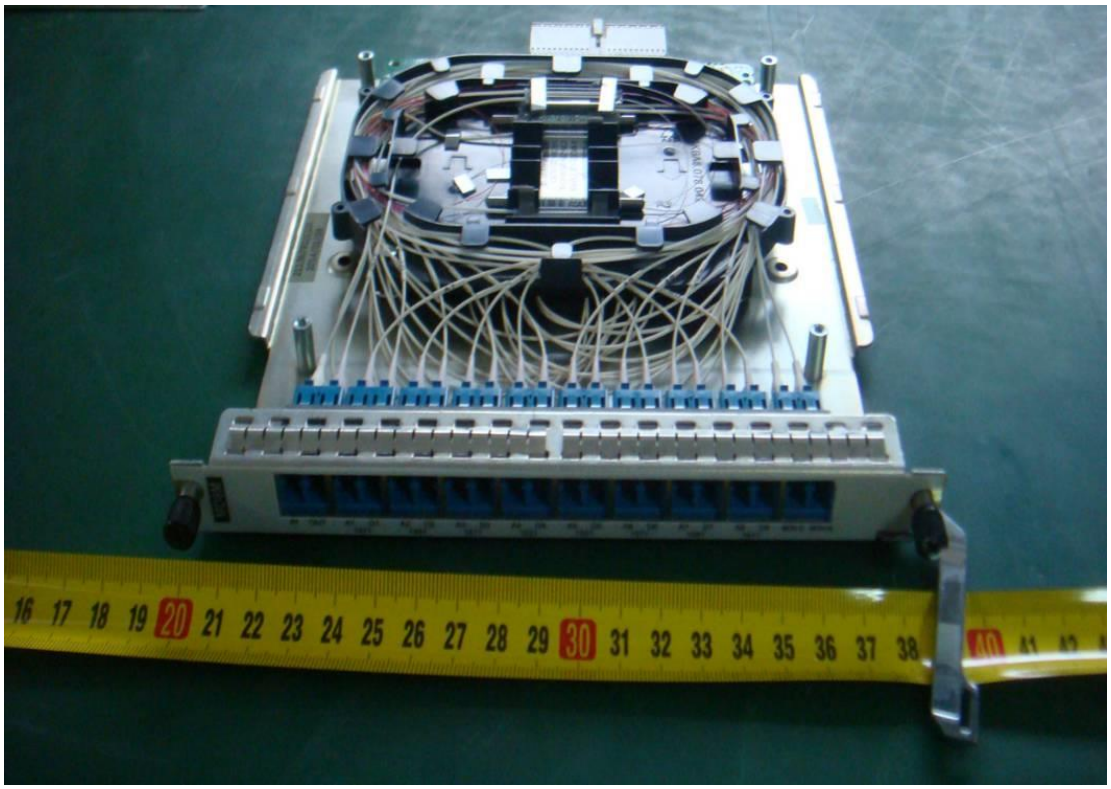


Photo-66 TNF1MD8S01

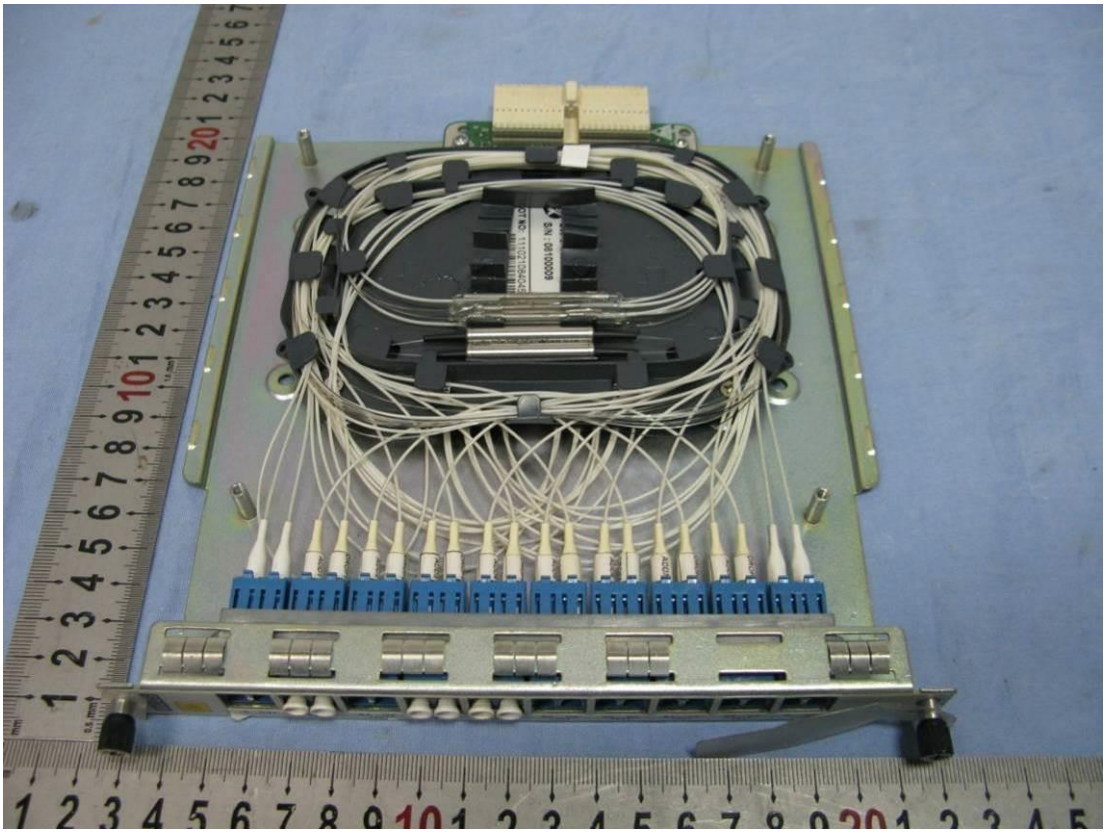


Photo-67 TNF1MD16M01

Photo-68 TNF1DMD2M01/ SM01/ M02

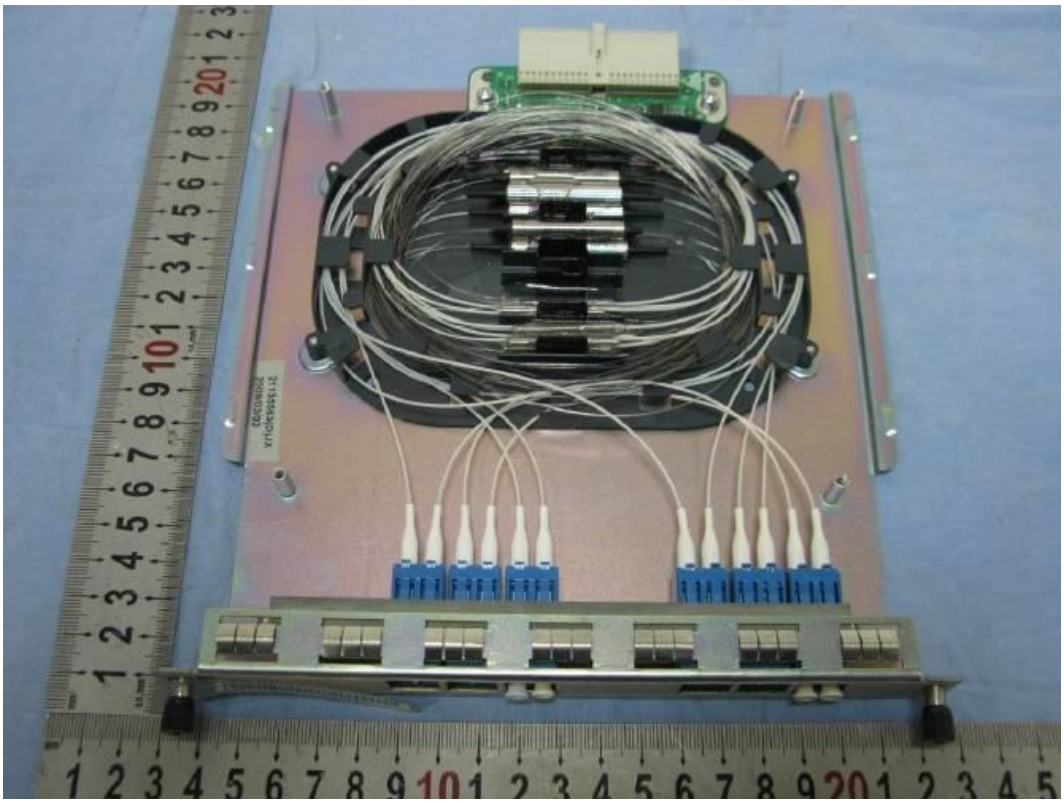


Photo-69 TNF1SBM1M03

Photo-70 TNF1SBM2M01/02/03/04

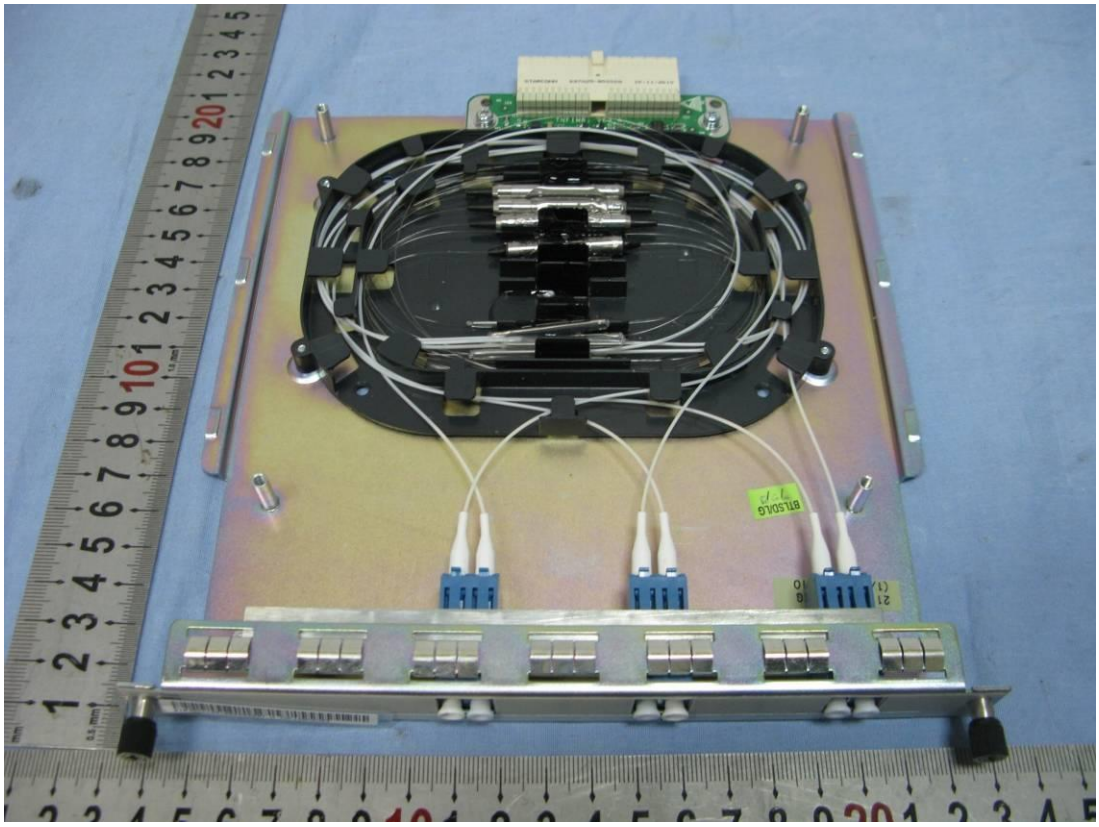


Photo-71 TNF1SBM401/401JP/402/402JP/403/404

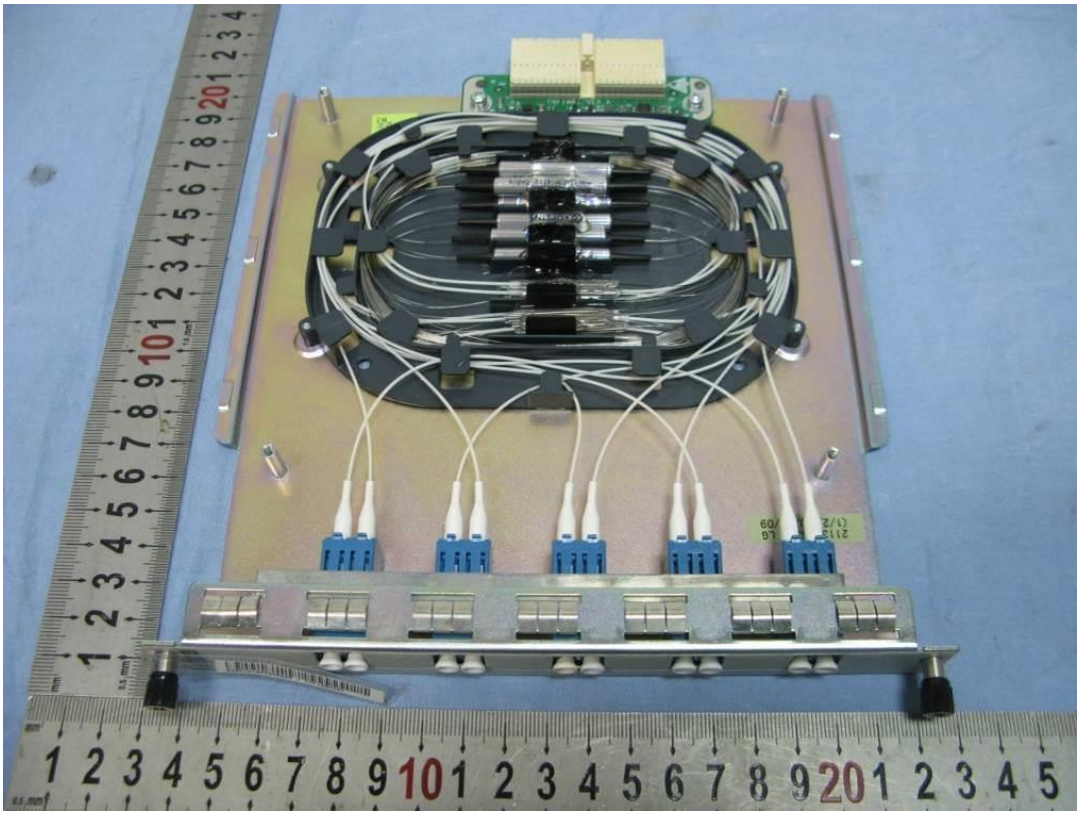


Photo-72 TNF1SBM801/803/803JP/804/804JP/805/806/811/812

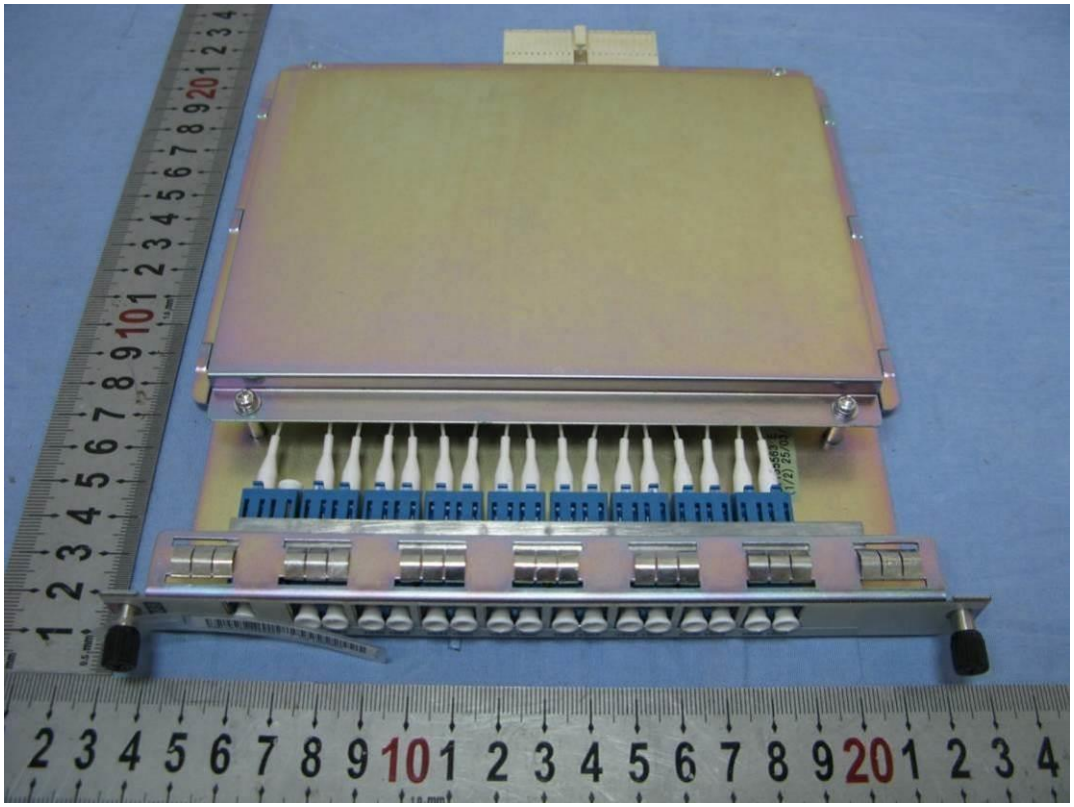


Photo-73 TNF1MB1/B1JP

Photo-74 TNF1X4001/4001JP/ TNF1X40JP/40/TNF1X40-1

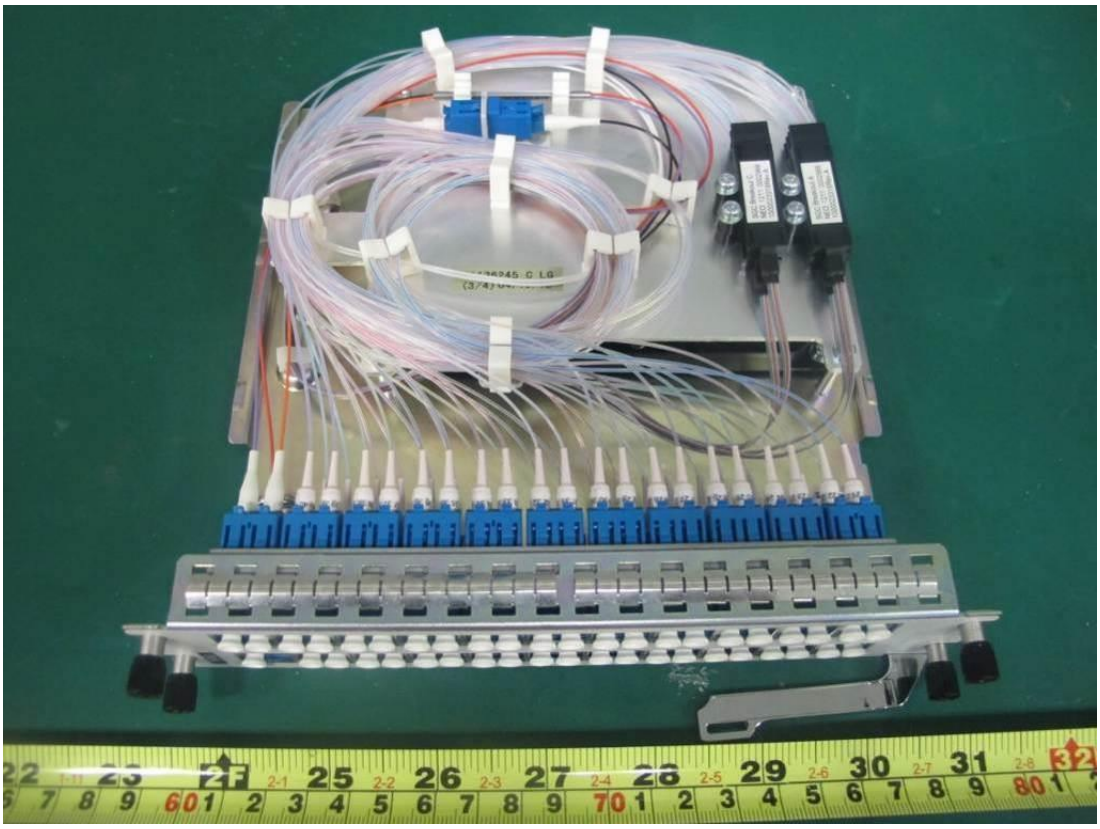


Photo-75 TNF1FIU01/01JP/03

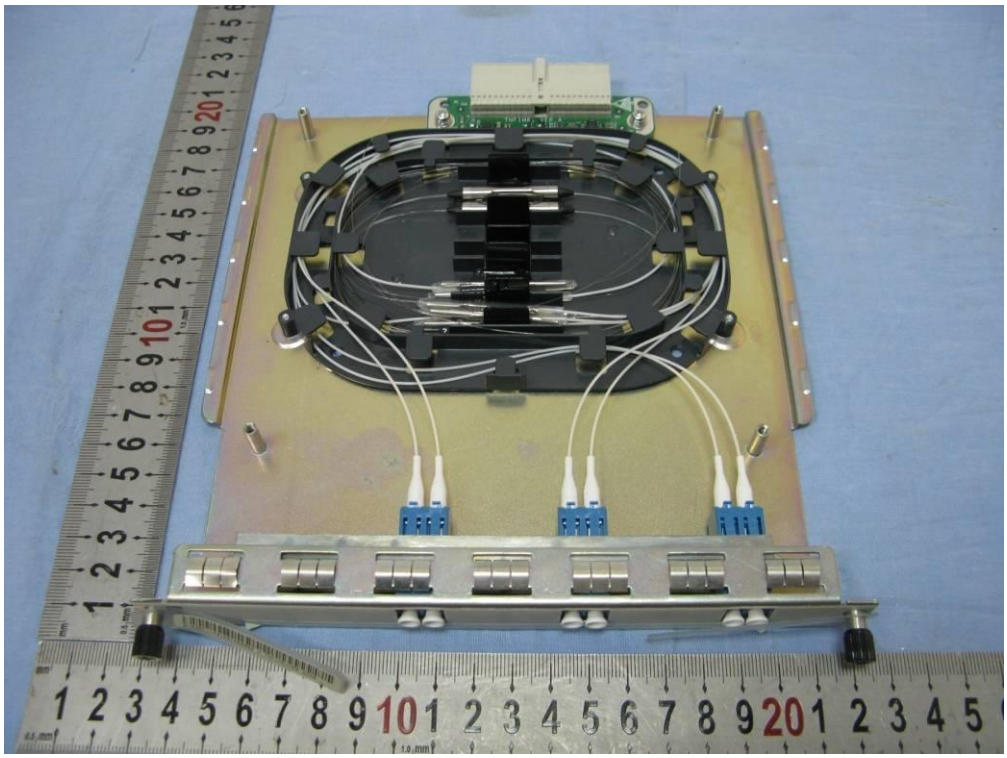


Photo-76 TNF2FIU01

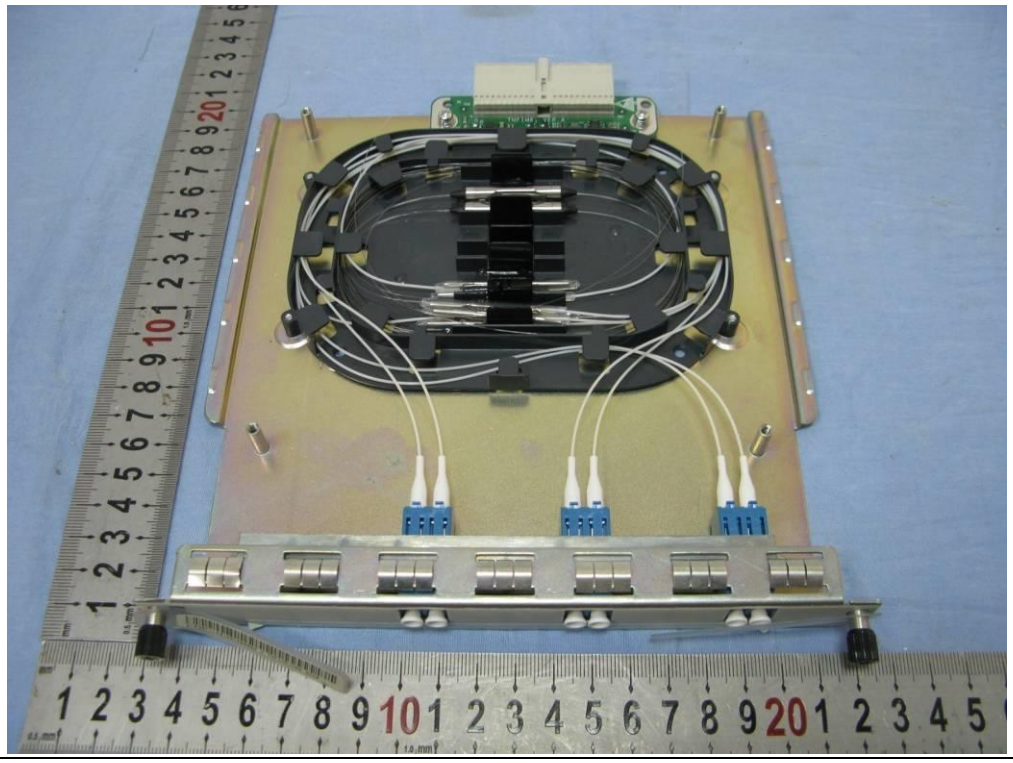


Photo-77 TNF1MR1SM01/02

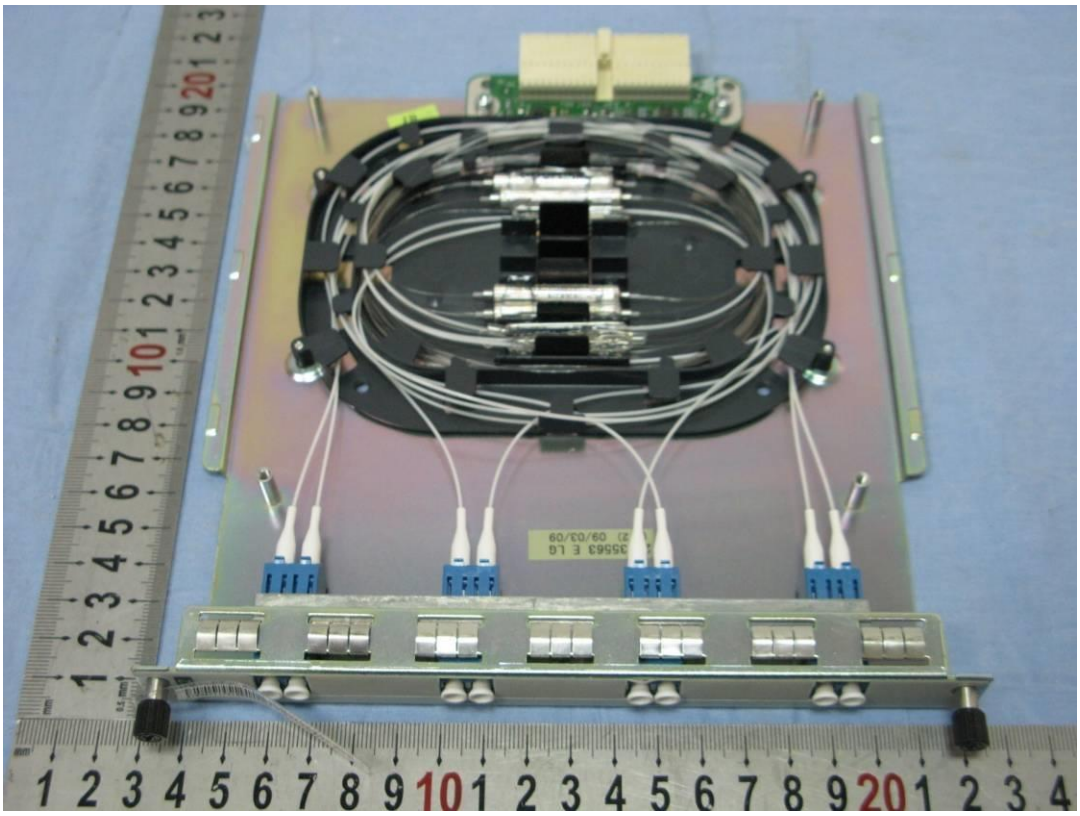


Photo-78 TNW1DIO

Photo-79 TNW1PL1

Photo-80 TNF1LDCA

END